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## The Beattie-Smith Lectures. (University of Melbourne.)

### ARCHIVES OF VICTORIAN PSYCHIATRY.

By C. R. D. BROTHERS,  
Melbourne.

#### LECTURE II: CLINICAL ASPECTS.

FOLLOWING on the description of the structural growth and administration of the Lunacy Department in the early days, as given in my first lecture, I now propose to give consideration to the clinical aspects during that period.

#### Incidence and Causation of Mental Disease.

At the time of its original establishment, Victoria had the good fortune to be settled by mainly healthy migrants, very few of whom suffered from any form of mental illness. As a result, in its infancy this State enjoyed an almost complete immunity from that burden which hung over all other neighbouring communities. However, fifty years later the incidence of mental illness in Victoria had risen so considerably that at the turn of the century this

position had become reversed. In 1856 the total number of patients per 1000 population was given as only 0.95, but by 1900 this figure had risen to 3.7, indicating an increase of 400%. A leading factor in this phenomenal increase was no doubt the provision afforded by the Statute of 1867 which enabled defectives, seniles, hemiplegics, epileptics, vagrants and so on to be admitted into the insane asylums in Victoria—those who in England normally would have been accommodated in the poor-houses. An additional factor was that it was not until the later years that Victoria had a receiving house, and therefore no means were afforded of weeding out admissions and preventing normal persons from being certified. New South Wales, on the other hand, did have this advantage, and consequently 10% of their patients who did not go beyond this stage did not appear in their annual statistics.

Apart from these considerations, however, the medical opinion of the day was that in Victoria mental illness was of unduly high proportion. At the 1884 Zox Commission it was pointed out that, apart from the mentally unfit sent out to Australia as convicts, it had also been the practice for the people of Great Britain to get rid of their mentally unstable relatives by "sending them out to the Colonies". In many instances no sooner had they arrived than they broke down completely. This practice continued even to the present century, and no doubt many of us can remember numerous remittance gentlemen who, unable to adjust themselves to the social pattern at home and

<sup>1</sup> Delivered at Melbourne on September 5 and 12, 1956.

sent out here for their country's good, unfortunately had even less chance of adjusting themselves in a new country such as this. They were a very poor risk indeed, and did little good either for themselves or for their new country. Even by 1900, only 43% of those admitted to asylums were registered as Victorian born. The remaining 57% consisted of 14% English, 11% Irish, 5% Scottish, and 27% from other States and countries.

Psychiatry is still searching for and theorizing as to the cause of mental illness, and there is little doubt that even many of the more acceptable theories of today will be considerably modified some fifty years hence. However, at this juncture I should like to mention some of the views on causation expressed by Victorian alienists last century.

Paley, in his report of 1872, gave the following as the chief causes of insanity: hereditary predisposition (40%), intemperance (25%), puerperal fever (8% of females), general paralysis of the insane, and psychological maladjustments in a new country. In regard to the last-mentioned he referred to the loneliness of shepherds, the alternation of hope and despair replacing the level monotony of a labourer's existence at home in England, the restless vitality in pursuit of pleasure and gold, the free use of ardent spirits, the enervating influence of tobacco and the superabundance of animal food in the diet. According to him most attacks of mental illness occurred at the time of middle age.

Some fifteen years later, with regard to this high incidence Dr. J. W. Springthorpe made the following statement:

One very important cause I consider is the past history of the Colony. You may call it our fevered past—the time of the goldfields—the distinct nervous tendency inherited from those times, the excited natures that came out and which have been transmitted to their descendants. In addition, there is the way of living we have now—our hurried present.

#### Classification.

Did the types of mental illness last century differ very materially from those we see today? And if so, in what way? The impression gained by a cursory review of figures appearing in early reports is that schizophrenia as we now know it was relatively less frequent then than it is today, and that on the other hand manic-depressive psychosis was probably much more frequent. But the mode of classification then in use does not assist one materially in making an accurate comparison. For one thing, the majority of acute psychotic states especially in the very early years were classified as either a form of mania or as melancholia; and for another it was not until the days of Kraepelin that in 1896 *dementia præcox* was first recognized as a separate disease entity.

At Yarra Bend the terms used denoting forms of mental illness during the 1850's were as follows: melancholia, acute and chronic mania, religious mania, monomania, mania of moral insanity, and partial paralysis. However, McCrea in his annual reports very wisely used a much simpler classification. In 1858 this read as follows:

Maniacal .. .. .	209
Melancholy .. .. .	162
Idiotic .. .. .	68
Convalescent .. .. .	12

McCrae remarked that until some standard of classification was adopted little was to be gained by minute subdivisions in mental ailments. By 1890, there does appear to have been some attempt made at standardization. In that year the following tabulation was adopted:

Congenital Mental Deficiency (with or without epilepsy).  
Acquired Epilepsy.

General Paralysis of the Insane.

Mania—acute, chronic, recurrent, suicidal, a Potu, delusional and puerperal.

Melancholia—acute, chronic, recurrent, suicidal, delusional and a Potu.

Dementia—primary, secondary and senile.

As can be seen from the statistical tables appearing in such annual reports, the majority of patients admitted were still diagnosed as manics or melancholics. However, it is apparent that many such cases today would be regarded as belonging to the schizophrenic-paranoid groups, as would all those then classified as primary dementia, and certainly the majority of secondary dementias.

Another question that arises is whether or not there has been any change over the years in the types of symptoms presenting. The acute psychotics of a hundred years ago probably were much more disturbed, more violent and more openly aggressive than they are today. Consequently, their symptoms were much more positive. The so-called acute delirious manias and the acute toxic confusional states up to fifty years ago were not uncommon, but today they are comparatively rare. The text-book descriptions given then for schizophrenia (or *dementia præcox* as it was then called) do not seem to apply today nearly as closely as they did then. Take, for instance, the katatonic variety of this disease with its catelepsy, verberation, echolalia, echopraxia, stereotyped movements *et cetera*. Such a picture is only rarely seen today, whereas formerly it was of common occurrence.

What, then, is the explanation? Can it be the changing social pattern? Patients admitted to hospital 100 years ago were mostly illiterate, heavy-drinking, virile and adventurous types living under conditions which were much cruder, rougher and tougher than today, and it is perhaps not to be wondered at that they reacted more aggressively in their psychotic state. Then again, no doubt owing to improved hospital and out-patient facilities, we are now receiving and treating patients at a much earlier stage of their illness—a stage before the old classical symptoms could perhaps have become manifest. If this is so, and it may well be, it is a triumph for prevention and early treatment.

The term "general paralysis" had been loosely applied in those early years to include many forms of organic deterioration other than that caused by syphilis. Nevertheless, undoubted cases of true general paralysis of the insane did occur, and at a much greater frequency than they do today. In fact, by the mid-nineties this particular disease had rapidly become the most common single type of mental illness, and for two years in succession it accounted for half the male admissions to Kew. This meant that 95 patients with general paralysis of the insane were admitted annually to that institution alone. Unfortunately, owing to the brevity of annual reports and the paucity of statistical data, exactly what number were admitted to other institutions during that period is not revealed. The only information available on this subject was the inspector's annual report, which stated that the incidence of general paralysis of the insane had increased in all other institutions. Today, sixty years later, we find general paralysis of the insane of extreme rarity, and it is doubtful whether more than five or six such patients are now admitted to hospital in the course of a year. This is a definite tribute to prevention, early recognition and successful treatment, general paralysis of the insane being one of the few types of mental illness of which we definitely know the cause, and hence the treatment.

Huntington's chorea, on the other hand, until recently was a disease of great rarity here in Victoria. However, for a number of years now it has been much more common in occurrence than has general paralysis of the insane. Prior to 1900 there were no more than three such patients recorded as being admitted to mental hospitals in this State. The first, admitted in 1879, was diagnosed as suffering from "choreic dementia"; but the recorded clinical description, and the fact that this person was the progenitor of a large number of descendants who later developed similar symptoms, leave no doubt as to the accuracy of the diagnosis of Huntington's chorea.

The proportion of patients with senile mental deterioration who entered hospital in the 1880's was approximately 3%; towards 1900 it had risen to 10%, as compared with 23% in 1955. The two most obvious reasons for the large



increase in such cases today are the increased longevity of the population, and the changes in the socio-economic situation in the community.

Although the alcoholic states were not listed as a form of insanity last century, nevertheless alcoholism then, just as it is today, was generally recognized as being one of the most important factors in the causation of mental illness. In 1851, Embling stated that 50% of the admissions at Yarra Bend were due to alcohol. A few years later, at the height of the Gold Rush, it was officially estimated that whereas 25% of admissions were purely due to alcoholism, alcohol as an aetiological factor occurred in as many as 75%. During the 1870's a Dr. Blayden stated that 33% of patients admitted to mental hospital owed their mental state to alcohol. Ten years later Dr. McCarthy, of the Northcote Inebriates' Retreat, considered that the figure was nearer to 60%.

Originally, all alcoholics as well as alcoholic psychotics were admitted to Yarra Bend. Consequently, many of the discharges included in the annual statistics referred to alcoholic patients who recovered after but a few days' abstinence. However, in 1873 their admission was stopped by Act of Parliament. This was largely on account of Paley's strong objection to their being able to make use of the asylums as a free and pleasant place in which to recover from a debauch. Thereafter the responsibility for their treatment was taken over by the inebriates' institutions.

#### Treatment.

In the early days, the methods of treatment at Yarra Bend mostly followed the principles that had existed in England some twenty years earlier. These principles, admirably described by Ellis in his "Treatise on Insanity" in 1837, consisted of both medical and moral treatment. Medical treatment, principally used in cases due to physical causes, was also employed in the acute early stages of mental illness then thought to be brought about by moral causes. Moral treatment, which was conceived by Pinel of France, and which necessitated on the part of the physician "the gaining of the patient's confidence by kind treatment and a solicitude for their welfare", really was the embryonic form of psychotherapy—social, occupational and recreational—as practised in our mental hospitals today, and in fact it embraced all those measures other than medical treatment in an attempt to cure or alleviate mental illness.

The medical forms of treatment first adopted at Yarra Bend were mainly used with the idea of relieving cerebral congestion. These consisted of the following measures: (i) copious bleeding from the temporal artery; (ii) dry cupping; (iii) refrigeration to shaved heads; (iv) blistering; (v) the use of setons; (vi) cold showers; (vii) warm baths; (viii) purging; (ix) the administration of emetics; (x) the use of bitter tonics; (xi) the exhibition of narcotics; (xii) pustular eruptions; (xiii) diet. Apparently the use of cold showers ceased after 1852, as a result of the inquiry held that year, when it was alleged that the staff used this so-called method of treatment merely as a form of punishment. A method adopted for patients allegedly feigning insanity, according to an entry in the medical register of the Collingwood Stockade, was the rather drastic reduction of diet until the patient became completely exhausted and practically pulseless, at which stage the diet was then gradually increased back to normal. The survivor was then said to be fully cured of his symptoms, and usually there was no further recurrence.

According to old Yarra Bend clinical records, drugs in use in these treatments during the early 1860's included digitalis, opiates, quinine and various aperients. Ten years later potassium iodide was used in cases of dementia following inflammation of the meninges; choral hydrate and bromides were also apparently used as routine treatment in cases of excitement. Opium was still extensively in use at this time, and was apparently found to be of some benefit in cases of melancholia. By 1883 bromides were being administered in the treatment of epilepsy, and sodium biborate was first introduced for such attacks at

the Children's Cottages, Kew, in 1890. In these old records a most interesting reference was located with regard to mesmerism. An entry on August 25, 1884, concerning patient W.C., suffering from alcoholic dementia, reads as follows: "Is constantly asking to be allowed to see Dr. Singleton who was treating his illness with mesmeric influence."

As the years went by, most of the original forms of physical treatment were gradually abandoned. Patients naturally received the current medical treatment for purely physical illness, but by 1880 on the whole the attitude adopted towards physical treatment of mental illness was one of masterly inactivity, a form of treatment which even today sometimes pays dividends.

The methods of treatment adopted for alcoholism in the 1850's were the use of opium, a spare diet, the exhibition of digitalis, leeching and cold effusions. McCrea claimed that he was thus able to reduce the mortality from 10% to 1.5%. The treatment given at the Beaconsfield Inebriates' Institution towards the end of the century was in principle directed towards the restoration of the patient's bodily condition and the teaching of self-restraint. All alcohol was stopped immediately on his admission to hospital, and narcotics were almost always avoided, even in the mild cases of *delirium tremens*. In the more severe cases of *delirium tremens*, chloral hydrate combined with either potassium or ammonium bromide was used, and sometimes morphine. The importance of active hard physical work during convalescence was also emphasized. With regard to the problem of prevention, at the time of the Zox Commission Dr. McCarthy made several interesting and practical suggestions. He considered that by a reduction in the number of hotels, and by depriving the "local bodies" of receiving a share in licence fees, Parliament could minimize the evils of alcohol, and also that licence fees, as well as portion of the revenue collected by the Government from the sales of liquor, should be utilized in establishing and maintaining a suitable institution. Patients, he insisted, should be compelled to work, and deprived of alcohol and tobacco during the period of their treatment.

In the implementation of the moral treatment of mental illness, difficulties were encountered almost from the beginning. These first began when the lay superintendent refused to acknowledge the medical officer's right even to assist in this treatment. But the main problem in its proper implementation was the extreme shortage of staff and the very poor types of persons offering. So difficult was it to obtain staff in the 1850's and early 1860's that the institutions were forced to employ illiterates and alcoholics, ex-convicts and ex-patients. In the 1870's practically 100% of the attendants were Irish migrants, worthy citizens for the most part, but completely illiterate and untrained; although training was begun for them in 1887, this soon broke down when the Public Service Board refused to promote staff on this basis of training. However, when it finally became easier to obtain staff, the lack of finance not only prevented any increase, but actually enforced a considerable reduction—so much so that in Paley's time the staff was reduced by as much as 47 in one year alone, and instead of one staff member to 10 patients the proportion became one to 12. Furthermore, it was not until 1900 that night staff was introduced at all.

During those early years at Yarra Bend patients lived rather a drab, miserable existence. They were without proper supervision, and were often subject to coercion and punishment at the will and caprice of drunken attendants. In addition there was no provision whatsoever for them to attend divine services, and they were entirely without means of occupation or recreation. Conditions for those still retained in the gaols were said to be even worse.

But with the coming of Bowle considerable changes were made. Occupation as a form of moral treatment he introduced in 1853. Patients were put to work at such tasks as cleaning and white-washing the wards, clearing and improving the grounds, road-making, carpentry and cooking, and one of their very first projects was to assist with the gathering of materials for the construction of

padded cells. In fact, of such benefit was some form of occupation found to be that with the introduction of gardening, an official visitor to the asylum, Richard Eades, in a report of July 6, 1855, made the following statement:

The occupation of gardening is becoming more general. Considered in an economic point of view it is no unimportant matter, but when viewed in its hygienic effects, its importance is paramount; not a few of the patients have stated that the first knowledge they had of their insane state was acquired while gardening. While thus employed they found themselves daily better able to think upon their history and to resolve they would banish from their minds the hallucinations which haunted them. In the flower gardens, the arrangement of the walks, the form of the beds and the kinds of plants, are left to the fancy of those who work them, so that the labour (always voluntary) is a source of amusement, to return to which they look forward with eagerness and pleasure.

At the end of Bowie's first two years, at least 40% of the male patients were thus employed. Similarly, the female patients were also employed upon various pursuits such as sewing, washing and general domestic work. Those patients who were unwilling to work or incapable of working were confined to their cells or sent out into the airing courts.

For many years the occupation of patients in such forms of unskilled manual labour remained the principal method of active treatment. As each institution became established, activities were gradually extended to include farming, vegetable growing, manufacture of clothing and other industrial pursuits. By the mid-1870's, annual reports reveal that the number of patients employed was between 50% and 60%, a figure which compares very favourably even with present-day achievements. The aim was to make the various institutions as nearly self-supporting as possible, and owing to the economies that later had to be exercised, this practice became an absolute necessity. However, although of considerable benefit to the patients themselves (who were rewarded for their labours in the way of extra diet, an issue of tobacco and a ration of hospital-brewed beer), this system was nevertheless frequently criticized on the grounds that they were being exploited and thus detained in hospital unnecessarily on account of their usefulness. This form of criticism, unfortunately, is not uncommon even today.

In later years official recognition was wisely given to the value of "patient activity". In the 1880's Dr. O'Brien of Kew made a remark to the effect that occupational treatment was the only curative measure of any value in restoring patients to their sanity. No one can dispute the fact that occupational therapy was not nearly so well organized or so scientifically applied then as it is today, employment of highly trained occupational therapists being a comparatively modern introduction. However, the fact remains that at least 60% of the patients at that stage were occupied in some manner, and as a result the number of cures reached a fairly high level.

On the other hand, the plight of the remaining 40% was most unsatisfactory. If, on account of their mental condition, patients were unable to be employed in some form of pursuit, very little effort was made to do anything about them, and for the most part they were left alone, unaware of their surroundings, and completely uninterested in what was going on around them, their dull and monotonous lives being interrupted only for meals and weekly bathing. Once he was allowed to drift into this pathological state of idleness, it seemed that a patient could never be reclaimed, and as a result these badly deteriorated patients gradually increased in numbers over the years.

Today, however, the reclamation of just such patients is one of the several avenues to which specially trained occupational therapists are devoting their attention. Although their scientific training is a wonderful asset in such cases, unfortunately they are handicapped by a lack of practical experience in the handling of the mentally ill, and on this account there is therefore much to be said for the introduction of nurses to the rudiments of occupational therapy. The recent innovation of the department in arranging occupational therapy courses for post-graduate nurses should do much to disseminate this desirable

knowledge on a much broader basis; thus the professional occupational therapists will perhaps be more usefully employed as teachers and advisers, and in the general administration of occupational therapy.

Another form of moral treatment, that of recreation, first came into existence in 1853. In that year Latrobe issued an order that patients were to have means afforded them of amusement and entertainment. This was provided by means of a bagatelle table, a piano, cricket and football equipment and later the addition of a small library. In theory this was all very well; but according to statements made by the Official Visitors, what in actual fact happened was that the bagatelle table was monopolized by the attendants, the piano remained unused, and the football and cricket equipment were also monopolized almost entirely by the staff, the patients' share of the game being confined to the doubtful one of spectators. Later it was found that the books in the new library remained unread, the majority of the patients being almost completely illiterate anyway. By the mid-1870's there appears to have been a considerable improvement. Patients' amusements then took the form of concerts, dances, books, playing cards, draughts and billiards. Outdoor games were considered most important, and it was also proposed to introduce bowls, skittles, handball and croquet. Small parties were frequently taken out for drives in the asylum wagenettes and were also allowed to attend outside amusements. However, although the importance of these excursions was recognized, they were nevertheless confined to the few non-troublesome patients, and one gains the impression that the staff benefited from them as much as did the patients, if not more. But this is rather understandable when one remembers the long and tedious hours they had to work, which resulted in their having to spend nearly as much time behind the walls as did the patients.

In the 1870's the religious side of moral treatment was first emphasized. This work, then carried out by visiting Church of England and Roman Catholic clergy, ten years later was further assisted by the appointment of a Presbyterian clergyman. Recognizing the value of this aspect of treatment, Paley recommended the appointment of full-time chaplains; but it was not until more than eighty years later, when very recently resident chaplains were appointed at the various institutions, that this objective was finally achieved.

In 1878 the first instance was recorded of an outside voluntary organization taking an interest in the welfare of patients. On this occasion a group of women volunteered to visit both Yarra Bend and Kew in an effort to cheer up and encourage the patients. They also volunteered to find patients employment when they left the hospital. Thus did these voluntary activities in effect constitute the first mental hospital auxiliary. Just how long they continued it not recorded; they obviously faded out, possibly during the depression years, only to be eventually resurrected in the 1930's by the present mental hospital auxiliaries movement.

#### Restraint.

Apart from its use as a method of expediency in controlling disturbed patients, restraint was also regarded by early medical men as a valuable form of moral treatment. The chief method resorted to in those days, that of mechanical restraint, was frankly admitted as being more extensive in use at Yarra Bend in the 1850's than it was at the same period in asylums in England. This was largely on account of inexperienced staff, unsatisfactory construction and layout of buildings, and inadequate facilities for classification and segregation of patients. Nevertheless, the use of restraint was never as great here as it was in England in the early 1800's.

Methods of mechanical restraint first adopted at Yarra Bend—the application of canvas dresses, jackets and gloves—were said to be resorted to only in cases of maniacal violence or dirty or obscene and destructive habits, and in the prevention of suicide. However, although the use of this form of restraint was frequently criticized, the alternative forms, those of seclusion, incessant watch-



fulness on the part of the staff and manual restraint, were regarded for obvious reasons as being equally objectionable, if not more so.

Nevertheless, the use of mechanical restraint at Yarra Bend did come under much criticism, and consequently led to an inquiry. When Bowie introduced his famous blanket-lined canvas bag instead of employing the usual form, the application of straps and handcuffs, the criticism that followed was one of the main factors that led to the 1862 inquiry at which his methods were so slated by *The Argus*. In the *Illustrated Melbourne Post's* defence of Bowie, that paper published the two illustrated sketches (Figures I and II) to demonstrate the more humane method employed by Bowie in comparison with that then in use at the Melbourne Hospital and the Lying-in Hospital. Bowie's

that of Kew in 1876. In these days, with better classification, greater freedom, improved attitudes, more enlightened staff and introduction of such methods as electro-convulsive therapy, and the use of insulin, modern sedatives and tranquillizing drugs, there should be far less excuse to have recourse to its use. Thus with these modern acquisitions we are in a vastly better position than ever our predecessors were; the lack of such facilities must surely have made their task at times very difficult indeed.

#### Results of Treatment.

Perhaps the most striking feature of psychiatry in the nineteenth century was the surprisingly high percentage of recoveries. The official figures of discharges listed as



FIGURE II.  
Hospital patient under restraint.

method they described as a bag laced up behind and at the foot, which had its value in the fact that it allowed movement of limbs and could also be modified during the daytime to allow the patient to move about, but without his being able to escape from it. In contrast, the method employed at the two general hospitals was described as the use of a sheet drawn over the upper part of the chest and under the arms, and another sheet drawn across the thighs, both being secured to the sides of the bed; in addition both wrists and ankles were strapped to the bed. This latter method, incidentally, although abolished in mental hospitals nearly a century ago, was still in use in certain general hospitals until quite recently.

Throughout the last century a certain amount of mechanical restraint was always in use. However, although this may have been abused somewhat in the early years, it does not appear to have figured in any inquiry following



FIGURE I.  
Yarra Bend patient, in the bag.

percentage of admissions, over the ten-yearly periods of that century were as follows: 1850, 60%; 1860, 50%; 1870, 49%; 1880, 52%; 1890, 36%; 1900, 40%. The lowest figures ever recorded, in the mid-1890's, was 27%. But this was largely attributable to the disproportionately high percentage of patients with general paralysis who, being then incurable, usually died within a year or two of their admission. The average discharge rate over these fifty years was 48%, while that for the first fifty years of the present century was 45%. However, when comparisons between discharge and admission rates are made, many factors should be taken into account—standards of so-called cures, types of patients admitted, overcrowding of institutions, early recognition and early treatment, use of receiving houses and public tolerance. Nevertheless, it must be acknowledged that the rate of recovery last century compares very favourably with that of today. Obviously manics and depressives have always tended to have remissions and alcoholics to sober up, and in cases of paraphrenia and paranoia, delusional systems have burnt out. Even some

30% of schizophrenics had spontaneous remissions sufficient to allow their discharge from hospital long before the advent of modern treatment.

Nowadays, with modern drugs and facilities available, we are all too prone to lose sight of the part played by custodial care and the effect of natural processes, as in the days of therapeutic nihilism. This is not to say that progress has not been made as a result of modern ideas and treatment. Statistics indicate that more patients than ever are now being discharged. But rather than the dramatic number of cures, possibly the greatest progress as a result of modern therapy has been the considerable lessening in the duration of mental illness. An attack of mania or depression, which formerly took many months to remit, can now be terminated within a matter of weeks or even days; gross mental deterioration in cases of chronic mental illness can also now be considerably retarded.

#### Medico-Psychological Education.

Even as late as the close of the century, medical knowledge of mental disorders was still very much in its infancy. Here in Australia advancement in psychiatric knowledge and hospital treatment naturally lagged well behind that of European countries, and in fact, with the exception of such men as Bowie, Paley and Beattie-Smith, Victorian medical men prior to their joining the department knew little or nothing about insanity. Although in the early 1880's a few lectures in lunacy were given by a Dr. Neild, lecturer in forensic medicine, other than this there was no organized course for university undergraduates, nor was there any systematic or effective training for post-graduates. Theoretically, candidates for examination for the degree of doctor of medicine had to attend the metropolitan institutions once a week for a period of three months, but this practice was not insisted upon.

An attempt to rectify this unsatisfactory state was made at the time of the Zox Commission, when it was strongly recommended by a number of medical witnesses, who included McCrea and Neild, that there be created a professional chair for the teaching of insanity. However, owing to the already very intensive course undertaken by medical students at that time, and to the fact that there appeared to be little scope for alienists in private practice, it was not thought likely that the university would accede to this request. Nevertheless it was declared that "it appeared like an act of cruelty to allow men who had merely a smattering of knowledge to treat people for a disease that may be aggravated rather than cured by malpractice". Therefore, as it was considered that the study of mental diseases required at least three years' training, it was thought that no medical officer should be allowed to treat patients until he had completed at least two of these years. As a result it was proposed to appoint clinical clerks, who would receive £100 for the first year and £200 for the second, and then at the end of three years be appointed to the permanent medical staff at £300, rising to £500 at the end of five years, by which time they were to be regarded as specialists. It was further stipulated that no one was to be appointed to the position of superintendent unless he had completed at least five years in some hospital or asylum "for the treatment of diseases of the brain". However, as the department had previously lost valuable medical staff on account of the extremely low rate of recompense, it was decided to make provision for all those holding the degree of doctor of medicine to be appointed at once at the £300 level without having first to serve a probationary period as clinical clerks.

Other important ideas expressed at this Commission with regard to medical staff were the following: (i) that there should be one medical officer for every 100 patients; (ii) that each hospital could with advantage employ a female assistant medical superintendent, who would be in charge of the female wards; (iii) that junior medical officers should be transferred from hospital to hospital at the end of each year to enable them to receive all-round experience; (iv) that honorary medical staff should be appointed to each institution; thereby would be formed a valuable auxiliary service, and at the same time they would be

allowed the opportunity of increasing their own clinical knowledge.

In regard to scientific research, evidence given at the Commission by the late Dr. Springthorpe is well worth quoting. He said:

It seems to me that practically no systematic series of scientific observations in lunatic asylums is conducted and practically no original scientific investigations. I do not know of any original papers that have come from the Asylums or any scientific discoveries or reforms such as might be considering the facilities we have. With all this, I have no wish to impugn the efficiency of the present lunatic asylum administration. I simply say it wants the scientific spirit and it wants onward motion. The causes of this absence may be classed as follows—the comparative absence of scientific spirit in the Colony, the absence of official example and inducement, the appointment of inexperienced medical officers with a short stay in office and the absence of any lunacy instruction or practice before giving our M.B. degree.

He further suggested that medical officers should be present at all post-mortem examinations, that microscopic examinations of the brain should be made, and that the staff of the metropolitan asylums should give lectures to the medical students, thereby benefiting both the staff and the students.

Apparently the university did take some heed of these suggestions, as two years later it became the practice for all graduates studying for the degree of doctor of medicine "to visit Kew regularly on Sunday mornings for instruction in mental diseases". In 1893 the first proper course of clinical instruction for undergraduates was begun at Kew, and this work was carried on by Beattie-Smith when he became superintendent of that institution in 1899. However, to judge by the type of lecture given as much as twenty-five years later, these appear to have consisted of little more than the imparting of knowledge concerning the recognition of various mental illnesses, and the correct procedure of making out medical forms and certificates.

The pigeon-hole descriptive psychiatry of fifty years ago, apart from a few men such as Dr. Neild and Dr. Springthorpe, interested so few medical practitioners outside the department that the majority were woefully ignorant of practices in this specialty. Since then interest and knowledge have been greatly increased, largely as a result of Freudian teachings and of the stimulus received from World Wars I and II, which so brought this subject into its own that private psychiatry has now become a fashionable specialty.

#### Changing Attitudes.

Prior to the introduction of modern methods of treatment, an extremely low level of interest was displayed towards the patients by all sections of the staff. Today, however, with the various active therapeutic measures now in use, the staff are able to see the benefits of their efforts, and their interest has consequently been stimulated enormously. Even in cases in which treatment eventually proves valueless, the fact that something positive is being attempted automatically binds the staff more closely to the patient, who in turn invariably responds to this increased personal attention.

Unfortunately, the attitude of the community towards the mentally ill was one of even greater lack of interest. Not only the stigma attached to certification, but also the prejudice felt towards any form of hospitalization, and even towards the mentally ill themselves, have been states of mind with which psychiatry has always had to contend. This attitude of the public has taken many years to change to any perceptible degree, and even until very recently it remained one varying between complete indifference at one extreme to feelings of guilt and shame at the other. But a review of early circumstances clearly indicates a number of reasons for this.

Originally the care of the mentally ill was the direct responsibility of the gaols, and even with the establishment of asylums, the general atmosphere still remained very much that of a penal establishment. At the end of the nineteenth century our institutions were still definitely



custodial in function, more than three-quarters of the patients being admitted from the courts and only comparatively few privately. The strictness of this custodial care and the primitive living conditions were such that relatives were most reluctant to have patients enter an institution; when they did, they regarded them as lost forever. Of course, at that stage psychiatry, being regarded so much as the Cinderella of the medical specialties, and mental nursing, if it was recognized at all, as very much the "poor relation" of general nursing, there was perhaps little incentive and encouragement to improve the patients' welfare.

This attitude of indifference was also adopted by the general hospitals. Although admittedly receiving wards were opened in several country hospitals in the 1870's, this was no doubt as a matter of expediency, and metropolitan general hospitals not only made not the slightest attempt at provision, but apparently completely dissociated themselves from the problem. Asylums and general hospitals were "poles apart", and this remained the attitude right up until the 1920's, when the first general hospital psychiatric clinic was pioneered by Dr. Hal Maudsley at the Royal Melbourne Hospital.

Largely owing to this lack of interest and seemingly complete indifference, successive governments adopted a most apathetic attitude. They regarded the Lunacy Department as a non-productive department; a necessary evil, but not a vote-catching project. In view of this lack of interest, the department was indeed fortunate in having as it did a number of very able and far-sighted men, who did their utmost to bring about reform and introduce new methods. However, each in turn experienced frustration and disappointment. It was clearly shown that in the absence of a sympathetic public, a helpful government and a cooperative and knowledgeable staff, one expert alone was quite incapable of bringing about any extensive improvement. Such reform can be fully realized only by an enlightened community, and improvements in psychiatric methods can be achieved only by increased knowledge and experience of the subject by all members of the staff.

Ideas concerning all aspects of psychiatry have undoubtedly changed over the years, and it is hoped that they will continue to change in the future. Buildings we now regard as being quite modern, and theories we may regard as being very learned and advanced, will no doubt be just as outmoded fifty years hence as today are those that were held last century. But in conclusion I should like to lay stress upon the fact that, in spite of the greatly improved attitude and the very great advances in treatment that have been made, there is still no room for complacency whilst the ratio of the insane to the general population remains at its present level of 3.6 per thousand.

#### PSYCHOSOMATIC FACTORS IN OBSTETRICS AND GYNÆCOLOGY.<sup>1</sup>

By C. L. CHAPMAN,  
Sydney.

FIFTY years ago, to lecture on the influence of mental and emotional factors in the causation of somatic disease would have been absurd. Materialism dominated science and humanism philosophy. But the shattering discoveries of atom-splitting and the proof by Einstein that Newton's laws of motion were not flawless have made us veer towards theism, and admit the power which psychological factors and unknown extraneous forces may have in causing even organic disease. My attention was first drawn to this about ten years ago.

A young woman, aged twenty-two years, whom I had examined a few times with her mother, came to see me by herself one day complaining of right-sided pelvic pain. There was no deviation from normal, except that I now noticed that she was now no longer virginal. Conventional treat-

ment was unavailing over some months. She was then radiologically examined, and her right hip joint was said to show signs of early Perthes's disease. When it was proposed to put her in plaster of Paris for some months she objected, although she had had to give up tennis and dancing. It was then that I began to see the psychological side, so I found that she had indulged in regular clandestine intercourse with her boy friend. I discovered that she was terrified of becoming pregnant, but was anxious to please him. I advised her to break with him, and she eventually did. The pain decreased, the X-ray picture became stationary, and she began to play golf. Not long after she fell in love with a second young man who married her, and from that time she recovered completely, with complete restoration of function, and went through a normal pregnancy with no disability whatsoever.

I shall not deal with the deeper Freudian aspects of early life; I will leave these to my psychiatric colleagues.

Too often in the past the gynaecologist has attached undue symptoms to minor pathological changes, instead of regarding the patient as a living entity; hence there has been much surgical treatment for simple retroversion, small follicular cysts and so on. We all know that women come to us for months with a mucous discharge which we treat with painting, douching, tampons *et cetera*, and no result. Then there is the woman with "flooding" every month; we give her calcium and hormones and then curette her uterus. The scrapings are normal and the genital organs normal, and yet after a brief lapse still she has severe hæmorrhage. Another patient comes to us with bilateral pain with every menstrual period, we find no organic change, we give anodynes *et cetera*, and the pain passes; but then she suffers from menstrual migraine. Still again we have the patient who has constipation and dysmenorrhœa and bilateral pelvic pain. We discover a retroversion, we correct this and put in a Hodge-Smith pessary, her condition improves, and so we perform a shortening of round ligaments. There is two months' improvement. Then, though the uterus is nicely anterior, the dysmenorrhœa returns, and we make the diagnosis "neurosis".

Now the diagnosis in the case of simple discharge was meeting that young man three times a day after meals. The menorrhagia in the second case may have been due to excessive masturbation. In the third case the dysmenorrhœa may have been from practising *cottus interruptus*. Cases like the fourth labelled "nervous"—a complete failure after surgical treatment—will usually require the elucidation of some deep psychiatric problem by the psychiatrist. Now the lesson from these types of cases is, first, that we must exclude all obvious organic disease. Secondly, we must carefully assess minor deviations from normal. Then we must think of the psychological factors. Fear is the commonest. The common fears in a brief survey of my practice are the following: (i) Fear of pregnancy—a very widespread fear in both unmarried and married; in the unmarried for social reasons, in the married for economic reasons or because of experiences during pregnancy and confinement. (ii) Fear of the menopause; I need not enlarge on this. (iii) Fear in post-menopausal life that their husbands will cease to want them in the special sense that women give to that expression. In my experience fear of cancer and fear of venereal disease are much less frequent and much less important.

It is most important in assessing psychological factors to realize that they may be present with organic disease, and, of course, very grave organic disease may be present with no psychological reaction at all.

The common clinical conditions in which the nervous factor is paramount may now be considered.

In pregnancy, they are spontaneous abortion, toxæmia, pseudocyesis and *hyperemesis gravidarum*. In the first two it can be readily seen how the muscular mechanism of the uterus or the arteries can react to the stress of fear. Pseudocyesis is an example of the very great susceptibility of the female genital organs to emotional stimuli.

There are deep theories about *hyperemesis gravidarum*, such as that the childhood belief that the mother is orally impregnated unconsciously leads the prospective mother to rid herself of her undesired pregnancy by oral expulsion.

<sup>1</sup> Read at a meeting of the New South Wales Branch of the British Medical Association on August 30, 1956.

I will say that I have found that many women who suffer from *hyperemesis gravidarum* are spoilt children and very often have a pronounced mother attachment with disturbed sexual relationships. However, the symptoms nearly always depart with placentation, so psychological factors are only one element.

With regard to child-bearing, you are all well aware of the effects of fear on the cervix, and so much has been written on the subject that I will not discuss the subtleties of "natural childbirth", "waking hypnosis", "suggestive relaxation" *et cetera*.

In gynaecological disease we can consider the psychological factor in pain, the presence of discharges, and menorrhagia.

Pain is usually bilateral pelvic pain, and very frequently is associated with fear of pregnancy. It is seldom constant in time or place, and has resulted in the removal of many appendices and Fallopian tubes.

Any discharge occurring without discoverable organic cause is usually due to psychological factors such as day-dreaming, masturbation, "necking", and long engagements without complete sexual intercourse. Douches, tampons, painting *et cetera* do these patients endless harm.

Menorrhagia may be the result of psychological causes producing pelvic congestion, especially excessive masturbation or hurried clandestine intercourse.

With regard to frigidity, dyspareunia and vaginismus, it may be said that gynaecologists really deal with pseudo-frigidity—that is, frigidity not of emotional origin. The psychiatrist considers any woman frigid who does not experience complete orgasm. Gynaecology is especially concerned with dyspareunia in which there is usually a structural deviation as a basis, either immediate or remote.

I will not discuss the deeper aspects of sexuality, but the gynaecologist generally finds that fear is based on two main origins: (i) a fear of sexual intercourse dependent on memories of clumsy initial efforts; (ii) a fear based on modern housing conditions, in which peeping or listening is feared. Instruction and gentle dilatation of the vaginal introitus will remedy the first. The latter depends on provision of independent housing.

#### Sterility.

After all the paraphernalia of modern technique has been exhausted in the investigation of sterility, many imponderables remain. Probably tubal spasm is important. This may be due to many forms of anxiety, even to fear of never becoming pregnant. You are all aware of the extraordinary relationship of an adopted child to conception.

Mrs. W. had large cysts of the ovary removed, only part of one ovary and the corresponding Fallopian tube being left. She had been married seven years before operation. Two years after the operation she adopted a child. Four months later she became pregnant, and she has since had twin boys and a girl.

#### Pruritus Vulvæ et Ani.

Diabetes, worms *et cetera* are not the causes of *pruritus vulvæ et ani*, which is usually seen in older women when the external genitals are much atrophied. These require oestrogen and especially large doses of vitamins C and A. I have had a few cases of psychogenic origin in highly sexed women whose husbands were aged or impotent; they constitute a difficult problem.

#### Summary.

1. There are a profusion of psychosomatic factors affecting a large group of gynaecological maladies.
2. It is absolutely essential to exclude organic disease or to appraise its clinical significance carefully before considering psychosomatic factors.
3. The gynaecologist should employ all the measures of treatment required—dietetic, hormonal, physical and surgical—together with the simpler forms of psychological treatment such as explanation suggestion *et cetera*.
4. In cases involving deep psychiatric problems the patient should be referred to the psychiatric physician.

## THE PSYCHOSOMATICS OF OBSTETRICS AND GYNÆCOLOGY.<sup>1</sup>

By D. W. H. ARNOTT,  
Sydney.

THE reason for discussing the psychosomatics of obstetrics and gynaecology is the growing need of gynaecologists and those of other medical disciplines to gain further knowledge of the effects of psychic influences on the sexual and other physiological functions of the female generative system.

Among lower animals, these functions tend to be automatic, rhythmic actions; but in man with his great cerebral development and constantly expanding mental and emotional horizons, more and more of his former automatic, involuntary organ activities are being brought under psychic influence. As sex has become a much more conscious function, the generative organs have become increasingly vulnerable to good or evil psychic influences. How they are thus influenced still remains somewhat speculative, but discharges from the higher brain can influence hypothalamic centres; these can affect the autonomic system, causing muscular and vascular upsets in the generative organs, or through the anterior hypophysis stimulate the discharge of hormones, which can disturb their natural functions.

Traditional and religious attitudes and taboos towards sex, marriage and child-bearing have played their part in subjecting this area of function to unnecessary stress.

Whilst on the one hand sex has been clothed in guilt and sin and shame and made a major cultural taboo, on the other hand, there has been an increasing eroticism in our literature and in all forms of art which has caused, without a corresponding increase in the acceptable means of sexual expression, a constant stimulus of the thoughts and feelings of sex. In fact the marriage age is gradually being pushed on, and even after marriage the time for having children is delayed and the number severely restricted by economic and other factors. This sexual and maternal frustration is unnatural and emotionally unhealthy, and may lead to pelvic ill-health.

Fortunately, our traditional attitudes to sex are slowly changing, and will change further, with a lessening of the conflicts and frustrations relating to sexual life and a consequent decrease in functional pelvic illness.

The following conditions are those that frequently have a functional factor in them.

#### Disorders of the Menstrual Cycle.

How the normal menstrual cycle affects the female mind is nicely put by Benedek and Rubenstein (1939) as follows:

During the follicle ripening phase the psychological material (of the woman's mind) is dominated by heterosexual interests . . . it becomes increasingly strong during the ripening phase. With normal sexual adjustment . . . it finds normal gratification. Without sexual gratification, the heterosexual tension can be dammed up so that increasing hormone production causes an increased tension. In neurotic persons, we observe this increasing oestrogen production activates the psychological conflicts and thus the neurotic symptoms are intensified. This great psychic tension is suddenly relieved (but only for a short time) when ovulation occurs. The libidinous interest is withdrawn from the outer world and centred in herself. She is self-satisfied, wants to be loved and to be taken care of. She is content to be a woman. The period of post-ovulation relaxation is necessarily of short duration. Hormone production increases rapidly after ovulation. Although both hormones are produced during the luteal phase, progesterone now dominates the hormone picture.

<sup>1</sup> Read at a meeting of the New South Wales Branch of the British Medical Association on August 30, 1956.



The psychological material (of the woman's mind) corresponding to this phase of the cycle shows a tendency to be passive and receptive, a tendency to be impregnated, a tendency to be pregnant, a tendency to care for a child. After this phase of the cycle reaches its peak, the corpus luteum starts to regress and with it the production of progesterone diminishes . . . and then as the level falls, feelings of frustration and irritability become more prominent in the psychic material. After the regression of the corpus luteum many new follicles begin their development. Ordinarily, none of these follicles are destined to mature. However, they do produce oestrone in small quantities. This is immediately reflected in the psychological material by the reappearance of heterosexual interest.

MacKinnon and MacKinnon (1956) have recently published an article on the hazards of the menstrual cycle, and give a very interesting chart showing that most of the suicides, accidents and deaths in women occur in the middle and the beginning of the late luteal phase of the menstrual cycle. This would be about from the eleventh to the fifth day before the menstrual period commences, and corresponds to the fading period of luteal activity. They suggest that this is due to altered suprarenal cortical activity and consequently has to do with the stress mechanism. Thus it is probable that, during this fading luteal period, the body and the nervous system are in an exhausted, disturbed state, and that a woman in this period needs rest and comfort and should avoid undue stress and strain. The body, as it were, has organized all its mental, emotional and physical forces to achieve fertilization of the ovum, and when it has failed there are the usual dispiriting concomitants that go with failure. Premenstrual distress is perhaps more an expression of the organism's distress at failure to conceive, than anxiety in regard to the next menstrual period.

#### *Amenorrhœa.*

The cessation of menstruation seems to occur frequently in nervous diseases, and readily in some women after emotional shocks. I quote one unusual case in which this occurred.

The patient first came to see me when she was about eighteen years old, suffering from a mild anxiety state with associated amenorrhœa. She had had normal menstrual periods for some years prior to this time. She did not return to me again, but I heard that she had recovered from her nervous trouble and was leading a normal life. Twelve years later she came to see me again, with the following story. She said that the amenorrhœa had persisted for twelve years, and that she had come to the conclusion that she was quite different from other girls on account of this, and that it would not be fair to marry. Thus she had not allowed herself to become emotionally involved with any man during this period. She had consulted a gynaecologist, who said that she had an infantile uterus; but she said this could not have been so, because she had earlier menstruated normally for several years. About six months prior to consulting me, she had fallen in love with a very presentable young man, and as soon as this happened, her menstrual periods returned and seemed quite normal in every way. They have remained so for the past five years. She is happily married, but has had no children.

I mention this case, not to call attention to my poor handling of it, but to the incredible length of time during which menstrual function can remain in a state of hibernation and then return to normal—in this case, under the stimulus of what must have been a powerful sentiment of love.

The amenorrhœa that frequently occurs in severe nervous or mental illness is probably part of a conservation of energy policy and of no great importance, and it is best left to adjust itself; this it usually does as the patient recovers.

#### *Dysmenorrhœa.*

Dysmenorrhœa would appear to be an obvious choice as a vehicle for psychic distress with its symbolic form of a miniature labour; but little evidence is forthcoming to

confirm this, and menstrual pain still remains part of a physiological function which can be reinforced by emotional sensitivity and wrong mental attitudes.

#### *Vaginismus.*

Vaginismus is generally due to a fear of intercourse or pregnancy, or to a rejection of the feminine role, or to sexual trauma. Dunbar (1954), quoting Malleon, compares spasm of the vagina with blinking of the eyelids in anticipation of corneal contact, and considers it due to past pain or trauma of the genito-urinary parts. He mentions unhappy enema experience during infancy as one possible cause.

In the absence of physical cause, it should alert the gynaecologist to the possibility of a deep-seated neurosis.

#### *Frigidity.*

Frigidity may be due to emotional immaturity or to inhibition of sexual function by severe neurosis, or may gradually develop as the result of sexual frustration due to a husband's impotence or fumbling technique, or to loss of respect and affection for him. It may be due to inhibition caused by fear of motherhood and its responsibilities.

Frigidity in marriage is frequently just the end of a long road of inexpressiveness started in infancy and continued through adolescence into adulthood, and perhaps conditioned by a rigid, unaffectionate father or a sex-rejecting mother. It takes a very mature and understanding man to break through the sex barriers of such an immaturity developed person, or a very strong sexual attraction to trigger off an orgasmic climax and so open up the paths of normal sexual expression. Certain girls develop aggressive masculine traits or are encouraged to lead masculine lives by their parents, and end by rejecting their feminine roles. This leads to psychic chaos in their sexual attitudes, or sometimes to latent or overt homosexuality. Let me cite one case.

The patient was a young woman in her early twenties with long-standing frigidity, although she had two children. Her father so wanted a boy when she arrived that she was dressed as a boy till her breast development forced her out of boys' clothes. He even gave her a boy's name and made her play with boys, who thought she was a boy. She was so mixed up that at the age of fifteen years she married a man much below her social standard. Since her marriage she has had three violent friendships with women, two of whom wanted her to leave home and set up house with them. She became very depressed, as homosexuality really repulsed her; yet she could not make any sort of an emotional relationship with a man, and still remains a disturbed, conflict-torn person.

#### *Sexual Frustration.*

Sexual frustration may have physical effects on the generative organs, probably by causing vascular congestion, quite apart from the general nervous ill effects which may influence hormone function. Dunbar quotes Kehrer, who states that "women leading normal sexual lives remain free from fibromata". Stephenson and Grace (1954) state that "a higher proportion of severe personality maladjustment of a particular kind was found in those cases of cancer of the cervix than in women with cancer at other sites", and quote the following findings among the patients: dislike of intercourse, failure to achieve orgasmic satisfaction in intercourse, high incidence of divorce, desertion and unfaithfulness.

An odd case of this type was that of a woman, aged thirty-three years, who was married to a very well set up, masculine husband, with every virtue except that he was completely impotent, in that his erection would die before entry could be achieved. Her nervous health gradually deteriorated, and she made the remark that after one of these unsuccessful attempts at intercourse her womb "vibrated" all the next day, and that she could stand it no longer. This story had a happy ending, because the husband's local practitioner discovered the cause of his sexual inhibition after the wife had left him, and he was forced to do something about it. He had been very attached

to his mother and afraid of his father, and he had frequently heard his parents in sexual congress because of an open door and would lie in fear of his mother's being hurt. Once he discussed this he became sexually potent, his wife returned and eventually gave birth to a child, and incidentally she soon recovered her mental balance.

### Pruritus Vulvae.

One can well imagine *pruritus vulvae* as being the outward expression of sexual or maternal frustration, or a tearing away of an offending organ due to sexual guilt, or a form of perverted masturbation. I quote one case of severe *pruritus vulvae*.

The patient was a married woman, aged thirty years, who was referred to me by a skin specialist, who had exhausted all physical approaches. Under the influence of intravenously administered "Methedrine", she abreacted violently with abuse of and resentment towards various officers of the air force, of which she had been a member. She had been put in a decoding position which was beyond her capacity, although she was quite an intelligent woman, and she had been ridiculed and abused by them for her stupidity. While in this bitter, resentful state she had had an affair with a man who she later found was a married man, and she developed considerable sexual guilt plus resentment about the episode which appeared to express itself in the development of severe *pruritus vulvae*. However, all her life she had been frustrated in a strong drive for achievement and recognition, which started when she found she was unable to understand arithmetic, though otherwise of normal intelligence. She was ridiculed as a dunce at school, and instead of qualifying as a teacher as her sisters did, she had to enter domestic service, and started off life with a grudge and an inferiority complex. These attitudes, combined with the sense of sexual guilt, helped in the *genesis* of her *pruritus*. Once all this was brought to consciousness and discussed fully, she lost her *pruritus* and was able to settle down to a normal married life.

### Obstetrics.

From the moment when a woman realizes she is pregnant, she is subject to a barrage of physical and emotional stresses. Her ability to adjust herself to these stresses depends on her physical health and on whether she has been adequately conditioned to meet the various emotional stresses which pregnancy and childbirth create. To cope with the emotional stresses of pregnancy a woman must be emotionally mature; this implies a healthy, happy babyhood and childhood with loving, sexually adjusted parents. It implies that the girl has made an affectionate, friendly relationship with her father, and has lived expressively through all her emotional epochs. It implies that she has entered marriage with proper attitudes about sex and maternity. The realization that she is to bear a child should—and does to many women—mean the fulfilment of life's purpose, and she immediately begins to mobilize her mental and emotional forces to carry her through this stressful period. How necessary for everyone in her *milieu* to rally round and sustain her in her difficult role! The obstetrician should allay her fears and anxieties, as childbirth has always been an experience beset with archaic fears, with superstitious old wives' tales, and with morbid preoccupation by many young girls.

Fortunately in recent times the whole outlook relating to pregnancy and childbirth has been purified by such men as Grantley Dick Read (1955) with proper education of the pregnant woman, fear being replaced by understanding and tension by relaxation. This has in many women done away with a need for anaesthesia during labour, and replaced it by a desire to live through and enjoy the total experience of childbirth. Read quotes the following letter from a patient who elected to go through childbirth without anaesthesia:

I heard her (the baby) crying and saw her as she was laid on my stomach, my feeling at this moment was indescribable. I could feel laughter bubbling up from deep within me and the intense love for the tiny mite that washed over me in waves of absolute joy, left me breathless. I returned home. I am a far better wife than ever before. The aura of love I first felt in the delivery room has coloured my whole marriage. I have only to remember her birth and I can recapture the emotion in its entirety.

Such an emotionally satisfying experience must have expanded the emotional compass of that woman's mind and increased her capacity for affection-sharing and her general mental and emotional security.

If a pregnant woman does not receive from her husband or family the emotional support she needs, she easily drifts into a state of insecurity and fear which can end in breakdown. However, few women break down during pregnancy, but many do so in the puerperium. There is not sufficient time to deal with these puerperal illnesses, which are more in the purely psychiatric sphere.

Whether hypnosis has any significant place in obstetrics is hard to say. To most persons it is a menacing, threatening technique and smacks of charlatanry, and most medical persons would find it hard to embrace. I believe that if an obstetrician takes the trouble, he can establish such a strong rapport with his patient that a few words from him at the right time can do most of what hypnosis can do.

In my own very short obstetric experience I did try to tell my patients to sleep between their contractions, and most seemed to be able to do it, much to my surprise.

I remember one woman in a small private hospital whose contractions were starting to come on fairly frequently. When the sister told her that it was time to come into the labour ward, she said: "Can I bring my novel with me?" Perhaps it might be a good idea to have a few fashion magazines in the labour ward.

### Pelvic Pain.

Pelvic pain can be caused by congestion and muscular spasm, and these can be caused by autonomic upset from emotional factors; but it is always difficult to assess the relative influences of the physical and the functional factors in the production of pelvic discomfort or pain. The presence of pelvic pain in the absence of any very definite pathological condition should alert the gynaecologist to the possibility of neurotic illness, especially so if there are present such symptoms as headaches, dizziness, tachycardia, tremor, or flushing, or if the patient is over-anxious or depressed or has suspicious attitudes, or if she is unduly reticent or acts oddly when being examined.

### Conclusion.

While we are faced with repairing the pelvic casualties due to emotional ill-health, it is our duty to try to prevent such ill-health by dealing with it at its source. Gynaecologists and obstetricians are the shock troops of this front-line pelvic psychiatry, at present mostly armed with a scalpel only for what is a difficult form of psychological warfare. It is essential that they understand the psychosexual development of women and acquaint themselves with the growing knowledge of the mental mechanisms which make for emotional and mental maturity. At the same time, psychiatrists have much to learn about pelvic function. My impression is that the science of this field is just beginning and needs attack from many angles. Civilization depends on the integrity of the family. This in turn depends on the mental and emotional health of the parents, and this largely rests on the maintenance of a happy sexual and social relationship between them. The fight for the clarifying and distilling of a more perfect married union is largely in our hands, and its success depends on our maintaining a constant pressure on Nature to yield her secrets to us.

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## UROLOGICAL EMERGENCIES.

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In this presentation on urological emergencies, the objective has been to stress the important features and to suggest an effective method of treatment that is within the capacity of any doctor accustomed to surgery as distinct from the specialist. It has been necessary to evade many contentious points and to omit much that is valuable; but the procedures outlined have been proved as satisfactory methods of dealing with the emergencies concerned.

To turn first to the kidney, the emergency situations are rupture and acute obstruction in a solitary kidney. The latter is usually resolved in the first instance by ureteric catheterization or, should that fail, by pyelotomy.

## RUPTURE OF THE KIDNEY.

Rupture of the kidney may be due to direct violence, to penetrating wounds or to indirect violence as in acute flexion at the waist. The so-called "spontaneous" rupture occurs usually as a result of occult indirect violence, in kidneys already damaged by stone, tumour or infection.

In civil practice, in approximately one accident admission in 3000 the victim has a ruptured kidney. The lesion is relatively common in children owing to the lower site of the kidneys, the flexibility of the ribs, the absence of perirenal fat and the late development of Gerota's fascia.

## Diagnosis.

Signs of rupture may be obscured by concomitant intraperitoneal or thoracic lesions. The history is, of course, of primary importance, but the lesion may be disproportionately serious when compared with the type of accident. Haematuria may be microscopic or profuse, and its intensity has no relation to the extent of the damage. Profuse and persistent haematuria may be an indication for exploration.

Pain in the loin may be due to more superficial trauma. Apart from renal colic due to blood clot, that caused by the kidney injury is difficult to assess even if it is very severe. Swelling in the loin usually means that a retroperitoneal haematoma is present, and if it persistently increases in size it may constitute an indication for operation. Abdominal rigidity is generally present in some degree, particularly in the affected quadrant, and it often interferes with palpation. Intraperitoneal leakage of urine or blood will produce a much greater degree of rigidity. Shock is not pronounced in uncomplicated rupture of the kidney, and it is usually proportional to the blood loss. Profound shock without severe haemorrhage suggests other visceral complications, and recurrent shock coming on after a period of recovery is associated with continued haemorrhage. It also provides an indication for exploration.

Retention of urine is a common sequel to kidney injuries, but it may be a symptom of a concomitant spinal lesion. There should be no hesitation about catheterization if it is required. The specimen of urine should be examined macroscopically, microscopically and by culture. The presence of infection has a grave influence on the prognosis. Special investigations are microscopic and cultural examinations of urine, X-ray examination and excretion urography, and possibly cystoscopic examination and retrograde pyelography.

If it is practicable, X-ray examination of the urinary tract and possibly excretion urography should be carried out while the patient is on the way to the ward; failing that, it should be carried out as soon as the patient's condition permits. Delay means a fall in blood pressure with consequent diminished secretion and increased abdominal distension which obscures soft tissue outlines, and it also means deteriorating morale. No other investigation is required in 70% of cases.

When the films are available, the following features should be particularly noted: (i) Fractures of the spine, pelvis or ribs. (ii) Whether the renal outlines indicate

the presence and function of a contralateral kidney. Unilateral enlargement may mean an intracapsular haemorrhage. (iii) Whether secretion of contrast medium is absent or deficient bilaterally, which indicates hypotension or shock; it is absent on the affected side if the blood supply is deficient or the parenchyma is seriously damaged. This may be an indication for exploration. (iv) Stones, tumour, polycystic disease, hydronephrosis, duplication or ectopia; any of these may be demonstrable, and all are of the first importance in treatment. (v) Whether the psoas muscle outline is obscured; this occurs in perirenal haematoma or gross extravasation of urine. (vi) Scoliosis with the concavity towards the affected side; this indicates increased pressure in that region. (vii) The site of extravasation of dye; this shows whether the capsule is intact, and if it is ruptured, whether the tear is perihilar—the most serious type. (viii) The filling of the bladder with contrast medium; this should be noted, as there may be a rupture of the bladder as well.

Cystoscopic examination is necessary only if further information is required about the following: (i) The function of the contralateral kidney, which may not be well delineated in the urogram. (ii) Whether the ureter and pelvis are intact. It is futile to defer operation for long, for example, in the presence of avulsion of the pelvis or ureter. (iii) The degree of extravasation and its site. Extracapsular perihilar extravasation is usually of very serious import. (iv) The anatomy of the damaged kidney. At operation parenchyma and blood clot are easily confused, and a preview may assist greatly to determine the operative procedure.

## Treatment of Ruptured Kidney.

Operation on a patient with an uncomplicated rupture of the kidney is rarely of desperate urgency; in fact, complications are often more urgent and constitute the indication for operation. "Spontaneous" rupture is likely to be more urgent than the traumatic type.

Palliative treatment consists in prolonged rest in bed under careful observation. Urinary antiseptics are used, as blood clot and devitalized tissue provide an excellent bacterial culture medium.

The question "Is operation advisable?" may be answered differently by different surgeons. One school advocates exploration in all but the most trivial lesions, on the ground that operation can do little harm and that drainage of the area is nearly always a sound procedure. Others believe that the necessary manipulation may convert a minor lesion into one of extreme severity.

In the early stages, signs of internal haemorrhage and shock are an indication only for transfusion of either blood or plasma. Some delay under observation is advantageous, as it allows for recovery from shock, operative bleeding is less, investigations may be carried out and antibacterial agents have time to become active.

Positive indications for exploration are persistent gross haematuria, progressive shock despite transfusion, recurrent shock after temporary recovery, and signs of peritonitis. Other indications of lesser but still serious import are increasing swelling in the loin, gross extracapsular extravasation of opaque medium seen in the urogram, persistent absence of unilateral secretion seen in the urogram. Urinary infection adds to the seriousness of any of these signs.

## Operation for Ruptured Kidney.

If it is likely that both the kidney and intraperitoneal or intrathoracic organs are injured, use the loin incision first for the following reasons: (i) It is associated with minimal risk. (ii) The region is easily drained, and if necessary may be securely packed. (iii) The abdomen may be explored and clot evacuated after repair of the kidney by extending the incision and opening the peritoneum medial to the colon. (iv) Transperitoneal exploration of the retroperitoneal area is very ill-advised. (v) If extensive laparotomy is indicated, separate incisions should be used. Avoid transperitoneal nephrectomy.

**Types of Operation Indicated.**—In injuries of the kidney, liver and diaphragm, be very conservative. Hemostasis and drainage are all that should be attempted unless investigations are completed. Hemorrhage should be controlled by suture or ligature, and mass ligatures or clamping must be avoided. Remember the proximity of the duodenum and the vulnerability of the *vena cava*.

Partial nephrectomy and repairs to the pelvis are undertaken only under favourable circumstances — never in infected or penetrating wounds, except when the other kidney is absent. Extensive plastic operations often lead to necrosis, secondary hemorrhage or fistula, and secondary nephrectomy. However, uretero-pelvic tears or even avulsion of the ureter or pelvis, with a sound uninfected kidney should always be repaired, provided that the urinary drainage is free. Nephrectomy, in the presence of a functional contralateral kidney, is undertaken for persistent gross hematuria, multiple deep lacerations or damage to the renal pedicle. Generally nephrectomy is an easier operation than a plastic procedure and can be performed more expeditiously, but is difficult and hazardous immediately after a rupture. It is better to provide hemostasis and adequate drainage first; if necessary nephrectomy is carried out at a later date.

#### URETERIC EMERGENCIES.

Ureteric emergencies are almost exclusively concerned with surgical accidents. Post-renal anuria in a solitary kidney, the only other urgent condition, is usually dealt with by ureteric catheterization or, if necessary, by pyelotomy.

Those ureteric injuries associated with cystoscopic manipulations usually lead to some extravasation, but are not of great clinical significance provided that urinary drainage is free. If a ureteric obstruction persists, external extraperitoneal drainage is imperative.

Injuries occurring at open operation may be discovered at the time or disclosed later by anuria, unexpected loin pain or urinary fistula. The incidence is much higher than is usually imagined, because the few symptoms of aseptic hydronephrotic atrophy often escape notice during convalescence, and the symptoms of ureteric stricture take a long time to develop.

When unintentional trauma is observed at operation, the time to treat it is immediately; the longer the delay, the greater are the complications. If the ureter has been partially or completely divided or a short segment resected, proceed as follows: (i) Locate both ends. If the proximal end is lost, inject indigo-carmin intravenously. A ureteric catheter passed from the bladder will locate the lower end. (ii) Insert a fine retaining stitch in each end to avoid manipulation with forceps. (iii) Take a two-foot length of fine rubber or polythene tubing, cut several "eyes" near each end, and cut the ends obliquely. Do not use a ureteric catheter. (iv) Through the proximal portion of the cut ureter pass one end of the tube to the renal pelvis. (v) Through the distal cut segment pass the other end to the bladder and coil up the excess in the bladder. (vi) With three number 2 plain gut sutures draw the periureteric tissues together. Do not on any account attempt to make a water-tight joint. (vii) Provide external extraperitoneal drainage to the site. (viii) Remove the renal tube cystoscopically seven to ten days later and the external drain the following day.

If the ureter has been crushed, make a small longitudinal opening in it above the injury and carry out the procedures outlined above. In the event of subsequent sloughing the ureteric lumen will be preserved. When accidental ligation has been found, it is of course deligated. Note whether devascularization or crushing has occurred at the same time, and carry out appropriate treatment.

If a large segment has been resected, or if the lower end cannot be located, end-to-end anastomosis is impossible and other methods must be considered. Reimplantation into the bladder may be feasible, if necessary with a bladder flap as in Boari's operation. This is the most desirable method, but it must be carried out without tension. Cutaneous ureterostomy is safe, quick and easy,

and continuity of the ureter may be reestablished later. Uretero-colic anastomosis has poor end results at any time and an added risk without bowel preparation. Trans-abdominal uretero-ureterostomy is a long and difficult procedure, suitable for only the most experienced and dextrous surgeons as an emergency operation. It has the additional disadvantage that it involves the undamaged kidney. Deliberate ligation of a ureter is, of course, performed only in the presence of a sound contralateral kidney and in the absence of infection. To avoid fistulae, tie a knot in the ureter and use a non-absorbable ligature.

Nephrectomy may be performed if the opposite kidney is known to have good function.

Even better than successful treatment of ureteric injuries is avoidance of them. To this end these points may be helpful. Indispensable is a thorough knowledge of the adjacent anatomy, the anomalies being kept in mind. If a difficult operation is anticipated, excretion urography should be carried out first; it will indicate the function of each kidney, possible reduplication and any ureteric obstruction. Ureteric catheterization may be indicated at times, but its defects as a safeguard should be kept in mind—catheters may soften and not be palpable, or the catheter may be expelled by peristalsis or accidentally withdrawn. Mass clamping or ligature should be avoided unless the anatomy is clearly displayed, and in any case absorbable ligatures should be used. Transfixion ligatures must be placed meticulously. Do not perform extensive blind dissections, as the ureter is readily displaced and subsequently tied or cut. The best safety measure of all is to identify the ureters early and maintain visualization of them.

#### BLADDER EMERGENCIES.

Emergency surgery for the bladder may be called for in acute obstruction or rupture. Acute obstruction may be due to the prostate, to impacted stone, to tumour, or to foreign body. Rarely it may occur with an incarcerated gravid uterus, pelvic tumours or large cystoceles, all of which are readily diagnosed clinically, the emergency being circumvented by manual manipulation.

For bladder neck obstruction catheterization is the treatment of choice, and it rarely fails. First select a small Foley bag catheter. If it passes, it is the most conveniently retained. Should that fail, next use a small Tiemann catheter; keep the beak pointed ventrally unless an obstruction is met, when the catheter is rotated to various angles to ride over the obstruction. A larger Tiemann catheter with a guide (Saint Peter's prostatic stylet) will negotiate nearly all prostates, and a finger in the rectum pressing on the membranous urethra may also be a help. When the catheter enters the bladder, withdraw sufficient urine to make the patient comfortable, insert a spigot and tie it in until you decide on the final diagnosis and treatment. The utmost asepsis is imperative, and a no-touch technique must always be used for catheter and sounds. The second requisite for success is gentleness, and the third the capacity to inspire confidence in the patient, who will then relax adequately. The preliminary administration of a sedative is also very helpful.

An impacted stone or foreign body may be dislodged into the bladder with a sound, but care must be taken to avoid making a false passage. If your catheter enters a full bladder but urine does not run, suspect blood clot or tumour. Clear the lumen by gentle irrigation, and push the catheter well in so that the "eye" rises above any clot.

Suprapubic puncture by needle or trocar is an easy method to use on a distended bladder, but may have undesirable sequelae. The reason is that if a needle or trocar is inserted into a distended bladder, as the bladder empties the puncture site descends until it lies retro-pubically, and the needle or suprapubic tube opens up tissue planes into which urine extravasates readily. In addition, it is not unknown for a trocar to enter the bladder transperitoneally and even to perforate the bowel. These dangers are aggravated by second and subsequent punctures. Although the trocar and tube method is popular in England, it is appropriate only when other methods are not available.



The objective of cystotomy is to insert a tube into the bladder and bring it out of the abdominal wall two inches (three fingers' breadth) above the pubis. A transverse skin incision at this level with a vertical incision through the rectus sheath makes both dissection and proper placement of the tube easy. When the bladder is exposed it may be emptied by needle or trocar; this opening is closed, and the aperture for the tube is made at the highest point not covered by peritoneum. Suture the bladder to the rectus to close the space of Retzius.

Immediate prostatectomy is to be considered provided that certain conditions obtain: first, the patient's general condition must be adequate; there should not be gross urinary infection; the case should be one of genuine acute retention and not the final occlusion of chronic retention with actual or incipient uræmia. Finally, the operating theatre and other facilities must be readily available. Under these circumstances it is a highly successful procedure.

Clot retention is a separate problem. If a whistle-tip catheter can be passed, much can be done by lavage with a Toomey syringe. Under "Pentothal" anaesthesia a panendoscope sheath may be inserted, and suction with the Toomey syringe will evacuate any clots.

#### BLADDER INJURIES.

Bladder injuries may be mere contusions, extraperitoneal rupture, intraperitoneal rupture, or a combination of these. It has been noted that in 10% of cases of fractured pelvis a rupture of the bladder is present; 80% of these ruptures are extraperitoneal. Most extraperitoneal ruptures are of the anterior wall with extravasation into the retroperitoneal space, thence to the thighs and abdominal wall.

The cause is nearly always direct trauma with a relatively full bladder. Perforation by pieces of bone, sharp or blunt instruments and gunshot wounds are less common than crushing injuries with tearing of the bladder wall. The bladder is occasionally injured at open operation, when it immediately draws attention to the fact and repair can be effected at once; but damage resulting in subsequent sloughing may not be evident till a fistula occurs. More often it may be opened inadvertently in transurethral resection of bladder tumours or prostates.

The diagnosis is usually made on clinical grounds, special procedures being used only if doubt exists. The history is again of first importance, particularly whether the bladder is likely to have contained much urine at the time of the accident. Shock is not pronounced at first, but becomes more severe as extravasation increases. Immediate severe shock indicates injury to another viscus. Haemorrhage is not gross unless the damage is near the bladder neck, when signs of concealed haemorrhage may be present. Haematuria may not be a pronounced feature, and in any case urine is rarely available owing to sphincteric spasm.

Low abdominal pain and tenderness on suprapubic pressure are constant signs, and there is usually an extreme desire to pass urine with inability to do so.

Extraperitoneal ruptures have more pronounced suprapubic tenderness and usually dullness on account of extravasation. Some hours later there is also fever with a pronounced toxic state, and redness or induration appears in the suprapubic region or bruising of the abdominal wall.

When the rupture is intraperitoneal, ileus occurs early; but if vomiting takes place at an early stage it usually means that some other viscus is also involved. The special feature about an intraperitoneal rupture during transurethral resection is the rapidity with which pain passes from the suprapubic to the epigastric region, thence to the thorax and shoulder. At a later stage, of course, all the signs of peritonitis are present even if the urine is sterile.

Should any doubt remain and the patient's condition be good enough, excretion urography with oblique films will often give conclusive evidence. A cystographic examination carried out with the utmost asepsis and the conservation of any urine obtained, will give conclusive proof. Rarely is cystoscopic examination indicated, as negative findings are valueless and it increases extravasation. The practice

of instilling and aspirating measured amounts of fluid has so many fallacies that it is more noxious than useful.

The treatment of bladder rupture is really urgent. Delay invariably adds disproportionately to the seriousness of symptoms, as even sterile urine in the tissues leads to necrosis and toxicity.

The procedure should be in the following order: (i) Open the bladder and empty it. If there is a rent, repair it at once. If the urethra is also ruptured, instal an indwelling catheter while the bladder is open. Generally suprapubic drainage is provided, but a catheter may be adequate. (ii) Remove clots and urine from the perivesical space and provide drainage. (iii) Aspirate blood and urine from the peritoneal cavity and close the peritoneum. (iv) If the injury is transrectal, after repair and drainage of the bladder, provide a colostomy.

#### URETHRAL EMERGENCIES.

Urethral emergencies are due to traumatic rupture or to acute obstruction by stones, tumours and foreign bodies.

Again the diagnosis depends largely on the history. An impacted stone, tumour or foreign body can usually be felt in the penile shaft or by rectal examination. Stones and foreign bodies can be manipulated to the exterior or to the bladder. If a penile tumour causes retention of urine, it is much better to establish cystostomy at once.

Urethral rupture is characterized by blood at the meatus, bruising of the perineum or penile shaft and haematuria; if urine is available, there is often a desire to micturate but inability to do so. In the management, do not on any account allow the patient to micturate. This will prevent extravasation, the most important cause of serious complications. Pass a soft Tiemann catheter. If it is obstructed do not persist with catheterization but perform an immediate cystostomy and pass a sound from within the bladder to the rupture and then a sound from without inwards. Keeping the tips in contact, withdraw the bladder sound. Then insert and tie in a catheter. If there is much perineal bruising it is wise to drain this area.

#### EMERGENCIES RELATING TO THE PENIS.

The penis may be the subject of several emergency situations apart from the urethra. Rupture of the sheath of the *corpus cavernosum* ("fracture of the penis") causes extensive oedema and haemorrhage. Clots should be washed out, and if necessary the sheath sutured. This applies also to open wounds of the penis.

Strangulation usually occurs on account of adornment of the organ by the patient with various plumbing fixtures. Surgically the fixation of penile dressings by elastic bands and the like is to be avoided owing to the likelihood of sloughing. Much ingenuity may be required to remove the cause of the incarceration. The common accident is denudation by avulsion of the penile skin. The rule here is, after *débridement*, to conserve all possible proximal skin but remove any distal skin which has not an adequate vascularized pedicle. A split-thickness graft from the abdomen or chest is sewn in a zig-zag manner to avoid subsequent chordee. In the absence of such refinements, bury the penis under the skin of the abdominal wall. Urethral or perineal drainage is required, with the exhibition of stilbestrol and bromide.

#### EMERGENCIES RELATING TO THE SCROTUM.

The scrotum is sometimes partially or completely denuded of skin by machinery accidents. In such an event, conserve all undamaged skin and approximate it as far as possible. If the scrotal contents cannot be enclosed, they should be buried subcutaneously under any available skin. They are replaced when the scrotum is reformed. Tetanus toxoid should be given after such accidents.

Testicular injury is characterized by intense pain and severe shock, both of which may be present without rupture of the tunic. In addition, local swelling and extreme tenderness are present. If the tunic is ruptured, a massive haematoma forms rapidly. In the absence of foreign body, skin injury or notable haematoma, treat the

condition conservatively, but use antibiotics and tetanus toxoid in addition if the skin is broken.

When there is a massive hæmatoma, remove the clots, suture small tears in the *tunica albuginea* and control bleeding. If the second testicle is lost, attempt a repair. Hormonal replacement should be commenced at once if both testes are lost.

Torsion of the testis or axial rotation of the spermatic cord will lead to complete gangrene if it is not corrected. It occurs most commonly in children and not rarely among those with undescended testes. Sudden excruciating pain, which may be referred up the cord, is followed by extreme tenderness. Oedema and cutaneous hyperæmia take place rapidly. The epididymis cannot be palpated posteriorly, and the testis is characteristically high in the scrotum. Fluid accumulates within the *tunica vaginalis*. Pain may gradually disappear after several days, with final atrophy of the testis and epididymis.

If complete torsion persists for three or four hours, infarction is almost inevitable. Surgical detorsion should be combined with hydrocelectomy if necessary, and orchidopexy. Owing to the high incidence of bilateral congenital lesions, fixation should also be performed on the opposite side.

#### HÆMOLYTIC ANÆMIA COMPLICATING INFECTIOUS MONONUCLEOSIS, WITH REPORT OF A CASE.

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ALTHOUGH infectious mononucleosis is a disease characterized by widespread involvement of the reticulo-endothelial system, anæmia of any degree is unusual. In 1936 Read and Helwig analysed 300 cases and found anæmia in only six. Bernstein in his monograph published in 1940 stated that anæmia of any appreciable degree did not appear unless it was associated with some complicating feature such as dietary deficiency. Over the last five years, however, several papers have appeared describing cases in which the disease has been complicated by severe hæmolytic anæmia.

This paper reviews the literature, and reports a case in which infectious mononucleosis unmasked latent hereditary spherocytosis. It is concluded that hæmolytic anæmia complicating infectious mononucleosis may result from several mechanisms. A review of the main features of the reported cases follows.

Three of the six cases described by Read and Helwig (1936) show a sudden fall in more than one of the formed elements of the blood. In the first two cases there was pancytopenia, and in the third case the level of white blood cells rose as the hæmoglobin value fell. In this latter case the icteric index was 31. The authors attribute these effects to infiltration of the bone marrow. The rapidity of

the fall, the fact that cells with pronounced differences in survival time were affected simultaneously, and the high icteric index in the third case are evidence against these authors' conclusions.

The case described by Damashek (1943) was complicated by the concurrent administration of sulphadiazine. The clinical picture was essentially that of infectious mononucleosis, which was complicated by a hæmolytic episode appearing eleven days after the commencement of the disease. A circulating autoagglutinin was detected which showed different properties from the sheep-cell agglutinin. The titre of the hæmagglutinin in this case declined with the fall in titre of heterophile antibody, and had vanished by the time the latter had fallen to one in 512. After the single hæmolytic episode the patient made an uneventful recovery. In his comments Damashek considers that it is more likely that the autoagglutinin is related to the infection than to the sulphadiazine, and in the light of further knowledge this view appears correct.

In 1946 Riva described a case of hæmolytic anæmia occurring in a man, aged forty-five years. A crisis was the presenting feature, and after his admission to hospital the patient was found to be suffering from infectious mononucleosis. The autoagglutinin was present in a titre of 1:1000, and was persistent for a much longer period than in any other reported case. The titre of heterophile antibody some months after the episode was 1:128. This author also enumerates the different properties of the sheep-cell agglutinin and autoagglutinin. The patient was treated with multiple small transfusions, and two months after his admission to hospital his condition was considerably improved.

Although in the case of Ellis *et alii* (1948) the authors are wary of the diagnosis of infectious mononucleosis, the evidence presented for this diagnosis appears incontrovertible when viewed in the light of more recent case reports. Intravascular hæmolysis was the presenting feature, and a circulating hæmolysin was demonstrated. The titre of this fell substantially within seven days of the patient's admission to hospital, and this fall was paralleled by a change in the titre of heterophile antibody. There was no evidence of persisting abnormal cell fragility, in spite of repeated testing.

The essential features of the case described by Appleman and Morrison (1949) are a history suggestive of hæmolysis occurring over a period of five weeks prior to the patient's admission to hospital, and the presence of the fully developed picture of mononucleosis on admission, when spherocytes and abnormal fragility were also demonstrated. Two weeks later—by which time the heterophile antibody titre had fallen to approximately half the admission figure—tests for hæmagglutinins gave negative results. This was seven weeks after the initial episode and cannot be regarded as excluding a hæmagglutinin. The Coombs test was not performed.

The case of Wilson, Ward and Gray (1949) was characterized by two hæmolytic crises. During the first episode examination of the red blood cells revealed abnormal fragility and numerous spherocytes. The second crisis was

TABLE I.

Time.	Hæmoglobin Value. (Grammes per Centum.)	Erythrocytes per Cubic Millimetre.	Reticulocytes.	Leucocytes per Cubic Millimetre.				Platelets per Cubic Millimetre.	Spherocytes.	Serum Bilirubin Content. (Milligrammes per 100 Millilitres.)	Coombs Test Result.	Paul-Bunnell Test: Titre.	Osmotic Fragility.
				Neutrophilic Cells.	Lymphocytes.	Monocytes.	Eosinophilic Cells.						
On admission to hospital ..	9.7	2,500,000	—	880	2920	200	0	290,000	+	—	—	—	Increased.
Four days later ..	11.7	3,000,000	7.6%	4990	14,100	170	0	—	+	2	Negative.	1:3072	—
One month later ..	12.4	4,300,000	—	3630	3015	134	67	—	+	—	Negative.	1:384	Increased.



terminated by splenectomy, with pronounced clinical improvement. The authors do not mention any tests for hæmagglutinins, and the Coombs test was not performed. On review the patient was well, and no mention is made of spherocytosis.

In the patient treated by Sawitsky, Papps and Weiner (1950), the sudden anaemia was attributable to a hæmagglutinin which was demonstrated only by the Coombs technique. The presence of the positive reaction lasted for some months. Numerous spherocytes were demonstrated at the acute stage of the disease; but on review, with the exception of a positive response to the Coombs test, the hæmatological findings were normal.

Small and Hadley in 1950 reported a case of hæmolytic anaemia complicating infectious mononucleosis in a white woman, aged nineteen years. The acute episode was of short duration. No spherocytes were seen, and the osmotic fragility was normal. The liver and spleen were not palpable. There was no family history of blood dyscrasia.

In the case described by Berte in 1951, a circulating hæmagglutinin was present which was active at room temperature, and present for two weeks. No further details as to the property of the agglutinin are given.

The case of "T.D." reported by Young *et alii* (1951) in their article on hereditary spherocytosis shows many features similar to the case described below, in that a known sufferer from hereditary spherocytosis developed sudden and pronounced anaemia during an attack of infectious mononucleosis. Splenectomy performed at the height of the disease resulted in a complete remission.

In 1952 Merman described a case of infectious mononucleosis in which a hæmolytic episode occurred. The author states that cold agglutinins were present for twenty-eight days.

In the case described by Hall and Archer in 1953 there was definite evidence of a circulating hæmagglutinin, which, like the antibody described by Damashek and Ellis, was active against red blood cells of all groups. The agglutinin was most active at room temperature, but no further testing of the properties was possible.

There appear to be a number of different mechanisms causing the hæmolytic episodes in the cases cited above. The mechanisms can be described in three groups. In the first there is excessive destruction of normal red blood cells by a diseased and over-active spleen. In the second group either

TABLE II.

Author.	Sex.	Age (Years.)	Heterophile Antibody Titre.	Hæmagglutinin.	Coombs' Test.	Spherocytes.	Osmotic Fragility.	Family History of Hæmolytic Anaemia.	Total Leucocytes on Admission to Hospital. (Per Cubic Millimetre.)	Platelets per Cubic Millimetre.	Hæmoglobinuria.	Course.	Classification.
Damashek (1948)	M.	24	1:1024	Present.	Not performed.	Present during episode.	Increased during episode.	Not discussed.	12,500: lymphocytosis.	285,000	Present.	Self-limiting.	Circulating hæmagglutinin.
Riva (1946)	M.	45	1:128	Present.	Not performed.	Numerous during episode.	Increased.	Absent.	21,000: lymphocytosis.	—	Present.	Required multiple transfusions.	Circulating hæmagglutinin.
Ellis <i>et alii</i> (1948)	M.	21	1:1024	Present.	Not performed.	Not discussed.	Normal.	Not discussed.	24,300: lymphocytosis.	232,000	Present.	Severe, but self-limiting.	Circulating hæmagglutinin.
Appelman and Morrison (1948)	M.	22	1:512	Not present.	Not performed.	Present during episode.	Increased during episode.	Absent.	8800: lymphocytosis.	390,000	Present.	Self-limiting.	Circulating hæmagglutinin.
Wilson <i>et alii</i> (1949)	M.	18	1:896	Not discussed.	Not performed.	Numerous during episode.	Increased during episode.	Absent.	19,500: lymphocytosis.	240,000	Not present.	Relapse treated by splenectomy.	Circulating hæmagglutinin.
Sawitsky <i>et alii</i> (1950)	F.	17	1:512	Not present.	Result positive in high titre.	Numerous during episode.	Not increased.	Not discussed.	10,000: lymphocytosis.	—	Not present.	Self-limiting.	Circulating hæmagglutinin.
Small and Hadley (1950)	F.	19	1:896	Not present.	Not discussed.	Not present.	Normal.	Absent.	14,000: lymphocytosis.	—	Not present.	Self-limiting.	Hypersplenism.
Berte (1951)	M.	27	1:224	Present (2 weeks).	Not performed.	Not present.	Normal.	Absent.	24,350: neutrophilia.	383,000	Present.	Transfusion, with improvement.	Circulating hæmagglutinin.
Young <i>et alii</i> (1951)	M.	24	1:896	Not discussed.	Not discussed.	Persistent.	Persistently increased.	Present.	Not discussed.	—	Not present.	Splenectomy.	Hereditary spherocytosis.
Merman (1952)	M.	19	1:1792	Present (1:128) less than 4 weeks.	Not discussed.	Not discussed.	Not discussed.	Not discussed.	12,800: lymphocytosis.	—	Not present.	Severe, transfusion.	Circulating hæmagglutinin.
Hall and Archer (1953)	M.	19	1:1792	Present (27 days).	Result positive.	Not discussed.	Not discussed.	Not discussed.	19,100: lymphocytosis.	—	Not present.	Remission with cortisone.	Circulating hæmagglutinin.
Bean (1956)	M.	30	1:3072	Not present.	Result negative.	Present.	Increased.	Present.	4000: lymphocytosis.	290,000	Not present.	Self-limiting.	Hereditary spherocytosis.

hæmagglutinins or hæmolysins are present, and the destruction may occur either predominantly within the spleen, or in both the circulation and the spleen. In the third group the red blood cells possess an inherited abnormality, the effect of which is aggravated by the disease.

The first group is attributable to some disorder involving the spleen, or slowing the passage of cells through the spleen. The condition may occur whether the spleen is palpable or not, and may affect one or more of the formed elements of the blood. In view of the widespread involvement of the reticulo-endothelial system which occurs in infectious mononucleosis, it appears reasonable to expect this form of hypersplenism to occur. Recent papers have laid some emphasis upon thrombocytopenia as a complication of infectious mononucleosis. In the majority of cases described the authors consider that this phenomenon is a hypersplenic manifestation, although Ogilvie and Parry (1952) in their review attribute the findings to megakaryocyte depression. The evidence for the splenic destruction of platelets appears to be the stronger. The only case reviewed in this paper which appears to fall into the first group is that of Small and Hadley (1950). The episode described by these authors was self-limiting, and at no stage were any spherocytes detected. The osmotic fragility was normal, and there was no history of any familial disease.

In the second group there are present hæmagglutinins which act either by destroying the cells within the peripheral circulation, when hæmoglobinuria appears if the renal threshold is exceeded, or by permitting the cell to be more readily destroyed by the reticulo-endothelial tissue.

In the third group structurally defective cells are destroyed either by the spleen or by combined mechanisms. In the presence of a hyperactive bone marrow a condition of compensated hæmolytic disease is present. Any accentuation of blood destruction may overtax the compensatory mechanisms and precipitate a hæmolytic crisis.

Table II summarizes the essential features of the cases reviewed in this paper, and it is seen that when sufficient information is available they can be placed within one of the above groups. Thus the cases of Damashek (1943), of Riva (1946), of Ellis *et alii* (1948), of Appleman and Morrison (1949), of Berte (1951) and of Merman (1952) are classified in the second group. The case of Wilson *et alii* (1949) is more difficult to categorize. The authors state there is clear evidence of hypersplenism in that the incident was terminated by splenectomy. The presence of numerous spherocytes and abnormal fragility suggest that the hypersplenism was secondary to the presence of abnormal cells, and that the condition was in fact an acquired hæmolytic anaemia. Similarly the case of Sawitsch *et alii* (1950) belongs in this category, because of both the high positive titre of absorbed antibody and the presence of numerous spherocytes during the acute episode. Other significant findings are the rapid and complete recovery, and the negative family history. Normal saline fragility does not exclude acquired hæmolytic anaemia.

The cases of Young *et alii* (1951) and that described in this paper fall into the third group. Both of these patients suffered from hereditary spherocytosis, and a crisis was provoked in them by infectious mononucleosis. In the case of Young *et alii* splenectomy was necessary to control the anaemia, but in the case described below the disease was self-limiting.

#### Report of a Case.

The patient, a male, aged thirty years, said that he had felt well until two months prior to his admission to hospital, when he noticed headache, lassitude and malaise. Four days prior to his admission, after strenuous exercise he noticed that his skin had a yellow tinge, which became more prominent the next day, and persisted unchanged until his admission.

On examination, the patient was a well-built young man whose skin had an icteric tinge. His liver and spleen were palpable, and there were a few enlarged glands in both groins. His sternum was tender to pressure. A blood examination gave the following information: the hæmoglobin value was 9.7 grammes per centum, the erythrocytes num-

bered 2,500,000 per cubic millimetre, and the leucocytes numbered 4000 per cubic millimetre and had the following distribution: neutrophils cells 880, lymphocytes 2920 and monocytes 200. Platelets numbered 290,000 per cubic millimetre. A blood film showed anisocytosis with macrocytes, spherocytes, poikilocytosis and polychromasia. Hæmolysis commenced at 0.48% saline and was complete at 0.34% saline.

The jaundice cleared rapidly, but some days later enlarged and tender glands appeared in the right posterior triangle of the neck. The findings on another examination of the blood four days after his admission to hospital were as follows: the hæmoglobin value was 11.7 grammes per centum, and 7.6% of the red cells were reticulocytes. The leucocytes numbered 19,300 per cubic millimetre, 4990 being neutrophils cells, 14,100 lymphocytes and 170 monocytes. Anisocytosis, poikilocytosis and spherocytosis were still present. The lymphocytes were typical of infectious mononucleosis. The serum bilirubin content was two milligrammes per 100 millilitres; the faecal stercobilinogen content was 660 milligrammes per 100 grammes, and the twenty-four hour excretion of stercobilinogen was 706 milligrammes. Schumm's test produced a negative result. The response to the Coombs test was negative, and there was no evidence of cold agglutinins. A Paul-Bunnell test for heterophile antibody carried out eight days after his admission to hospital gave a titre of 1:3072. A bone marrow examination revealed a very active cellular marrow with pronounced normoblastic hyperplasia. There were many atypical cells conforming to the types seen in infectious mononucleosis.

The patient's condition rapidly improved. One month after his admission to hospital his spleen and liver were no longer palpable, and the results of investigations were as follows: the hæmoglobin value was 12.4 grammes per centum, and the red blood cells numbered 4,300,000 per cubic millimetre; the white blood cells numbered 6700 per cubic millimetre, 3630 being neutrophils cells, 3015 lymphocytes, 134 monocytes and 67 eosinophil cells. The blood film was normal. The Wassermann and Kline tests produced negative results, and the heterophile antibody titre had fallen to 1:384. These results are summarized in Table I.

The family history of this patient was interesting. His mother had her gall-bladder removed at the age of forty years for recurrent jaundice. His sister, a nurse, had suffered from persistent and refractory anaemia with episodes of jaundice. During training her gall-bladder was removed, and she was told that it contained cholesterol stones. A maternal aunt of the patient has also suffered from what has been termed gall-bladder trouble.

In view of the family history it was decided further to investigate the red cell fragility of the patient, his mother and his sister. The technique was as recommended by Dr. John Bolton and described by Young *et alii* in 1951. The accompanying graph (Figure 1) shows the relation between

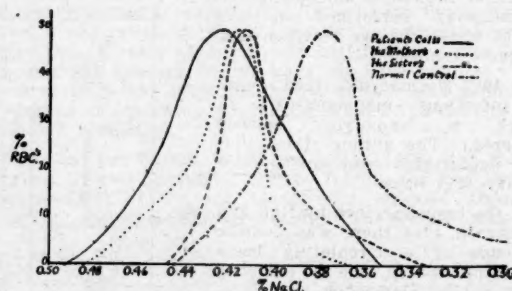


FIGURE 1.

osmotic fragility and cell population. A normal control is included for comparison. These curves demonstrate that the red blood cells of the patient, his sister and his mother show increased osmotic fragility. In view of these results the sister has had her spleen removed. Since then she has been well, is no longer anaemic, and has not suffered any further episodes of jaundice.

#### Summary.

Infectious mononucleosis is a protean disorder. Anaemia is an uncommon complication, but may be fulminating in



its appearance, and may precede other signs of the disease. It is suggested that the aetiology of the anaemia may differ in different cases, and be attributable to hypersplenism, to a haemagglutinin, or to the unmasking of a latent familial red-cell dyscrasia. The aetiology is important because the management of the different groups may differ. In the majority of cases the episode has been short and self-limiting. However, blood transfusion and the administration of cortisone have been used successfully in the cases associated with haemagglutinins. In one case associated with a haemagglutinin, splenectomy was necessary to control the haemolysis. Splenectomy was also necessary in one case of hereditary spherocytosis. This paper draws attention to a further mode of presentation of infectious mononucleosis, and bears out the fallibility of relying upon the presence or absence of anaemia to distinguish the condition from the acute leucaemias.

#### Acknowledgements.

My thanks are due to the staff of the pathology department of the Repatriation General Hospital, Heidelberg, for their assistance in the investigation of this case. I owe much to Dr. John Bolton for his teaching and helpful criticism. I am grateful to the Chairman of the Repatriation Commission for permission to publish this material.

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## Reports of Cases.

### KALA-AZAR IN A CHILD OF FIVE YEARS.

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#### Historical Note.

THE following is an extract from the account of kala-azar given in "The British Encyclopædia of Medical Practice" (1952):

In 1869, when the district of the Garo hills in Assam was first occupied by the British, an endemic disease was noted which was thought to be a severe form of malaria. The Garos called it "Kala-azar", which means the black fever, so-named from the appearance of the victims. Investigation showed that it had also been reported in other areas.

The disease was later found to be due to a protozoan parasite present in the endothelial cells of the spleen and liver and other situations. This was first demonstrated in 1900 by Sir William Leishman, in the spleen at post mortem examination on a soldier who died from Kala-azar contracted at Dum-Dum, a military cantonment just outside Calcutta. It was confirmed in 1903 by Charles Donovan of the Indian Medical Service, and this minute structure was generally known as a Leishman-Donovan body.

#### Clinical Record.

A., a girl, born on January 11, 1949, was admitted to the Royal Alexandra Hospital for Children under the care of Professor Lorimer Dods on November 5, 1954, being then aged five years and nine months. She had lived in Calabria, southern Italy, until March, 1954, when she had come to Australia with her parents, and had lived in Sydney since then. The child had been well until September, 1954, when she developed bilateral upper cervical tumours. These were at first considered to be parotid gland swellings caused by mumps; but as they persisted for six weeks, it was thought that they probably represented bilateral cervical lymphadenitis. During the six weeks that the swellings were present, the child developed pallor and an intermittent fever, which persisted until after her admission to hospital. She was examined early in October, 1954, by her local medical officer, who noted splenomegaly, a few enlarged lymph nodes, anaemia and neutropenia, and in the red blood cells, what "appeared to be elements of malarial infection". However, the child had not responded to antimalarial therapy, and her parents had been prevailed upon to bring her to the hospital for admission.

Examination of the patient on her admission to hospital showed her to be a pale, thin, olive-skinned girl. Her temperature was 99.8° F., and the edge of her liver, which was firm, smooth and not tender, was palpable three and a half fingers' breadth below the costal margin in the right mid-clavicular line, while the edge of her spleen, which was also firm and not tender, was palpable five fingers' breadth below the costal margin in the left mid-clavicular line. No enlarged lymph nodes were found, nor any other significant abnormality.

A blood count performed at that time gave the following result. The haemoglobin value was 8.1 grammes per centum. The erythrocytes numbered 3,280,000 per cubic millimetre; there was some anisocytosis and slight poikilocytosis, and many microcytes were present. Cells seen in smears were hypochromic, and some polychromatic cells were seen. The colour index was 0.82. Reticulocytes, which were 3% of the erythrocytes, numbered 98,400 per cubic millimetre. The leucocytes numbered 2700 per cubic millimetre, 23% being neutrophil cells, 68% lymphocytes, 9% monocytes, 1% eosinophil cells and 2% basophil cells. The number of thrombocytes appeared reduced. No malarial parasites were detected on examination of a smear of the blood.

Microscopic examination of 11 specimens of stool and urine revealed no abnormality, and there was no significant increase in the urinary urobilinogen excretion or in the serum bilirubin content; a direct Coombs test produced a negative result, and no abnormality was detected on radiological examination of the patient's chest, skull and hands. The erythrocyte fragility was normal. The erythrocyte sedimentation rate (micro method) was 20 millimetres in one hour (the upper limit of normal being eight millimetres in one hour). An iliac crest bone marrow biopsy was carried out on November 12, and was reported on by Dr. R. D. K. Reye as follows:

There are numerous Leishman-Donovan bodies present, the majority lying free, though some are situated within the cell body of the leucocytes. The erythropoietic cells are normal, and the leucopoietic tissue, apart from the parasitic inclusions, is unaffected; the megakaryocytes, however, appear unduly numerous with a larger proportion of young and poorly granulated forms with reduced platelet formation.

The formol gel test produced a positive result in three minutes on November 19, while bone marrow, cultivated on Nicolle, Novy, McNeal (N.N.N.) medium, gave a positive

result after two weeks, motile leptomonad forms of *L. donovani* being isolated.

After discussion with Dr. T. C. Backhouse, of the School of Public Health and Tropical Medicine, University of Sydney, it was decided to treat the child with pentamidine isethionate, in an attempt to eradicate the infection. She was given the recommended dose of four milligrammes per kilogram of body weight by intramuscular injection on alternate days, a total of nine injections being given, from November 16 to December 2, inclusive (see Figure 1). Her neutrophile cell count and her haemoglobin level rose, while the result of the formol gel test improved, and she gained three pounds in weight. The child's liver remained the same size, but her spleen increased until its edge was palpable eight fingers' breadth below the costal margin in

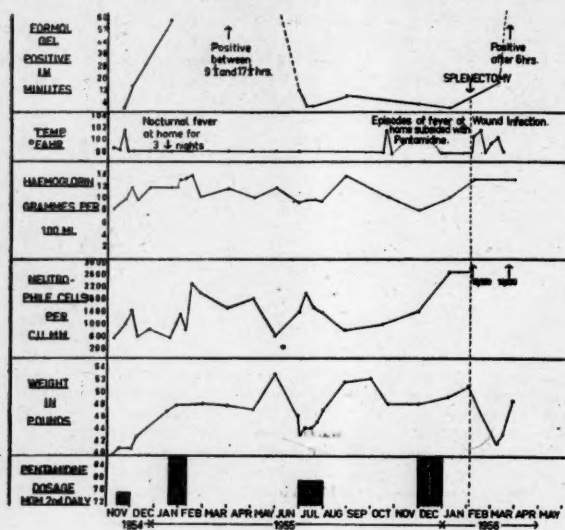


FIGURE 1.

the left mid-clavicular line. The temperature chart showed two "spikes" (to 101° F. at 10 a.m. and 102° F. at 10 p.m.) on the fourth day after pentamidine therapy had been started, and then remained normal.

She was discharged home, apparently much improved, on December 7. On December 20 her haemoglobin value had risen further to 11.5 grammes per centum, but her neutrophile cells remained at the low level of 980 per cubic millimetre (an increase of 359 over the previous figure).

On January 17, 1955, she complained of continuous abdominal pain present for the previous two weeks, and her parents had noticed nocturnal fever for the previous three nights. Her spleen was then palpable six fingers' breadth below the left costal margin in the mid-clavicular line. She was readmitted to hospital. The formol gel test produced a positive result at sixty minutes, and her serum protein content was nine grammes per centum (albumin 4.8 grammes per centum, globulin 4.2 grammes per centum). The neutrophile cell count had fallen, the thrombocyte count was 120,000 per cubic millimetre, while the erythrocyte sedimentation rate (micro method) was 18 millimetres in one hour (see Figure 1).

A second course of pentamidine isethionate was given on the same dosage scale as previously. The erythrocyte sedimentation rate fell slightly, while the neutrophile cell count and her weight rose.

On February 16 a second bone marrow biopsy (Dr. Reye) was reported on as follows:

The films contain no parasites. Hemopoietic elements are normal, apart from alteration in the megakaryocytes, similar to those found in the first preparation on 12th November 1954.

A culture of the leucocyte layer of centrifuged blood on N.N.N. medium produced no growth. She remained well over the next three months, her weight rising; but her neutrophile cell count gradually fell.

On June 27 her weight had fallen (to 46.5 pounds), the formol gel test produced a positive result in fourteen minutes, and her spleen had further increased in size, the lowest point of its edge lying eight to nine fingers' breadth below the xiphisternum. She was therefore readmitted to hospital and given a third course of pentamidine isethionate, totalling 15 injections (July 1 to 29, inclusive). No significant alteration in the haemoglobin value occurred during this course of injections, and the neutrophile cell count was much the same at the end of the course as at the beginning of it (see Figure 1). The formol gel test produced a positive result in four minutes on July 21. A third marrow biopsy (Dr. Reye) on July 27 was reported on as follows:

Megakaryocytes are numerous, with granular cytoplasm and normal platelet formation. There is a shift to the left of the myeloid series, with a normal gradation from immature to mature cells. There is also a normoblastic hyperplasia, with numerous immature cells, but the predominant cell is the late normoblast, and there is a normal gradation through the series. No Leishman-Donovan bodies present.

She was discharged from hospital and remained well, her weight and haemoglobin value rising, though a variable degree of neutropenia persisted over the next few months.

In October, 1955, electrophoretic analysis of the serum proteins was performed at the Clinical Research Institute, Royal North Shore Hospital. This showed a greatly increased  $\gamma$  globulin fraction of which the concentration was equal to, or even a little greater than, that of albumin. There was also an abnormal fraction present in low concentration, intermediate in mobility between  $\alpha_2$  and  $\beta$  globulins.

In November, 1955, weekly attacks of fever recurred. The patient was examined in consultation by Dr. Ralph Reader, who agreed that if a further course of pentamidine did not produce improvement, splenectomy should be carried out. At this time, the formol gel test produced a positive result in five minutes, the thymol turbidity was 14 units, the thymol flocculation was "++++", and the zinc sulphate turbidity was 34 units (normal, one to six units). The serum protein content was 9.5 grammes per centum (albumin 4.2 grammes per centum, globulin 5.3 grammes per centum), while a second electrophoretic analysis still showed a greatly increased  $\gamma$  globulin level.

The abnormality in serum protein levels, and reports of "false positive" responses to the Wassermann test in the presence of such abnormality, prompted the performance of Wassermann and Kline tests; results were negative.

As a fourth course of pentamidine did not produce improvement in the child's condition, splenectomy was performed by Dr. J. Steigrad on February 3, 1956. A firm, plum-coloured spleen weighing 756 grammes, with a number of enlarged hilar lymph nodes, was removed. The spleen measured 7.5 by 5.0 by 2.5 inches, and examination of cross-sections revealed a pale pulp with numerous and unusually large Malpighian bodies.

Microscopic examination of the spleen revealed cellular pulp and very large and active Malpighian bodies. The cellularity of the pulp was caused very largely by accumulations of plasma cells and macrophages, and a high proportion of the macrophages were packed with parasites. Erythrophagocytosis was in excess of that normally found. Microscopic examination of a hilar lymph node revealed hyperplasia of the lympho-reticular cells with considerable plasma cell accumulations, and fairly plentiful parasite-containing macrophages.

During the post-operative period in hospital, the child developed a wound infection, caused by coagulase-positive *Staphylococcus aureus*. A striking response of the bone marrow occurred, the peripheral leucocyte count rising to 23,000 cells per cubic millimetre, of which 19,550 were neutrophile cells (see Figure 1).



When she was next examined at the "follow-up" clinic in March, 1956, the child was afebrile and appeared well. Her weight, which had fallen after operation, had risen again, the formol gel test produced a positive result after six hours, the haemoglobin value was normal, and the neutrophil cell count remained rather high. The thrombocyte count had been intermittently reduced during the illness, but thrombocytes were now, not unnaturally, reported as very numerous.

In April, 1956, further weight gain had occurred, there was no fever, and the blood count was normal.

#### Discussion.

It was decided, when the diagnosis of kala-azar had been established, not to use any antimony preparation to treat the disease because of the considerable hazard of toxicity.

Goodman and Gilman (1955) and Cecil and Loeb (1955) (with the reservation that stilbamidine is more effective, though more toxic) recommend the use of pentamidine isethionate, an aromatic diamidine compound, for the treatment of kala-azar. The disappointing response of this child to four courses of pentamidine, given in the recommended dose of four milligrammes per kilogram of body weight by intramuscular injection every second day, undermines confidence in the claims made for the drug.

The decision to remove the spleen was made for the following reasons: (i) the child showed the criteria of "hypersplenism"; (ii) the hazard of rupture of the spleen following trauma seemed considerable; (iii) it was thought that the spleen might be a reservoir of infection.

It is therefore interesting to note that, although the organism was apparently eradicated from the bone marrow after the first course of the drug, and that repeated marrow biopsies showed no evidence of the organism, yet the spleen was a reservoir of infection which remained unaffected by drug treatment.

As yet, no claim can be made that splenectomy has cured this child, though it has been reported to do so when drug therapy has failed, and relapse is uncommon after splenectomy. One such case of relapse has been reported by Das and Sen Gupta (1950). Nevertheless, her progress since splenectomy is encouraging.

Although this disease has so far been a rarity in this country, the continuing influx of migrants from the Mediterranean area, where the disease is endemic, makes it likely to become more common, and it should be borne in mind in the differential diagnosis of fever, anaemia or splenomegaly in a child from that area.

#### Summary.

1. An historical note is given concerning the discovery and naming of kala-azar.
2. The history of the disease in a girl, aged five years, is described, showing the transitory improvement that occurred following four courses of pentamidine isethionate, and finally the considerable improvement which followed splenectomy.

#### Acknowledgements.

My thanks are due to Dr. R. D. K. Reye, Director of the Nellie May Simmons Department of Pathology, Royal Alexandra Hospital for Children, for his advice, and for the reports on the bone marrow biopsies; to Dr. Ralph Reader, who examined the child in consultation, for his opinion and advice; to Dr. T. C. Backhouse, School of Public Health and Tropical Medicine, University of Sydney, for his advice regarding treatment; and to Dr. F. F. Rundle, Clinical Research Institute, Royal North Shore Hospital, who performed electrophoretic studies of the serum. I am particularly indebted to Professor Lorimer Dods for permission to publish this case, and for his kindly criticism and most helpful guidance in the production of this paper.

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### A SEVERE CASE OF THYROID DRUG ADDICTION.

By E. A. C. FARRAN, M.D., M.S.,  
Melbourne.

ANY deleterious effects of addiction to drugs is due more to an underlying psychopathic personality change in the addict than to any specific action of the drug. The habit of taking thyroid tablets in doses of up to two grains daily is rather common, and probably does no harm; but when thyroid is taken in excess of this for a long period the effects on the heart, liver and general metabolism become noticeable.

#### Clinical Record.

Mrs. W., aged thirty-two years, had had a phobia about growing fat from the time she was aged fifteen years. She would diet herself and take thyroid tablets when she found some slight increase in weight. She began by taking one grain two or three times a day; after a few years she increased the dose to two and a half grains two or three times daily. In the last two years it had been further increased to five grains, taken three times daily for some months at a time.

In November, 1955, she came under observation for auricular fibrillation with cardiac failure and oedema, associated with malnutrition. She was treated in hospital, with improvement, and while admitting that she had been taking thyroid, she said she had given it up. Despite this, although she continued under medical treatment, her condition regressed, and the improvement that occurred in hospital was not maintained.

In June her condition was reviewed, and apart from the auricular fibrillation the findings were as follows. A blood examination showed that the haemoglobin value was 9.9 grammes per centum and the leucocytes numbered 6000 per cubic millimetre. Liver function tests gave the following results: the prothrombin concentration was 35%; the serum protein content was 6.3 milligrammes per 100 millilitres (albumin 3.4, globulin 2.9 milligrammes per 100 millilitres); the serum alkaline phosphatase content was 17 units; the serum bilirubin content was 0.7 milligramme per 100 millilitres; the cephalin flocculation test produced a positive (+) result; the urobilinogen excreted in the urine was 16.5 milligrammes per 100 millilitres; the zinc sulphate turbidity was 8 units.

It was suspected that the patient was still taking thyroid surreptitiously, and an I<sup>131</sup> (radioactive iodine) uptake test was carried out and showed no uptake in the thyroid at all. The patient was not myxoedematous, and it was thought that the thyroid function was being suppressed by the taking of thyroid by mouth. A search in her home revealed a number of thyroid tablets. Confiscation of these resulted in an improvement in her heart and general condition during the next few weeks. The heart rhythm became regular, the oedema less, and she was able to go about.

#### Discussion.

There are many references in the literature to addiction to thyroid, but reports of cases are difficult to find. All practitioners see the occasional patient who takes one or two grains of thyroid daily with apparently no ill effects.

Bartel and Higgins (1955), of the Lahey Clinic, report on 10 patients who developed exophthalmic goitre as a result of taking up to two grains of thyroid daily, over varying lengths of time, and make mention of 70 other cases in literature. On the other hand, Farquharson and

result after two weeks, motile leptomonad forms of *L. donovani* being isolated.

After discussion with Dr. T. C. Backhouse, of the School of Public Health and Tropical Medicine, University of Sydney, it was decided to treat the child with pentamidine isethionate, in an attempt to eradicate the infection. She was given the recommended dose of four milligrammes per kilogram of body weight by intramuscular injection on alternate days, a total of nine injections being given, from November 16 to December 2, inclusive (see Figure 1). Her neutrophile cell count and her haemoglobin level rose, while the result of the formol gel test improved, and she gained three pounds in weight. The child's liver remained the same size, but her spleen increased until its edge was palpable eight fingers' breadth below the costal margin in

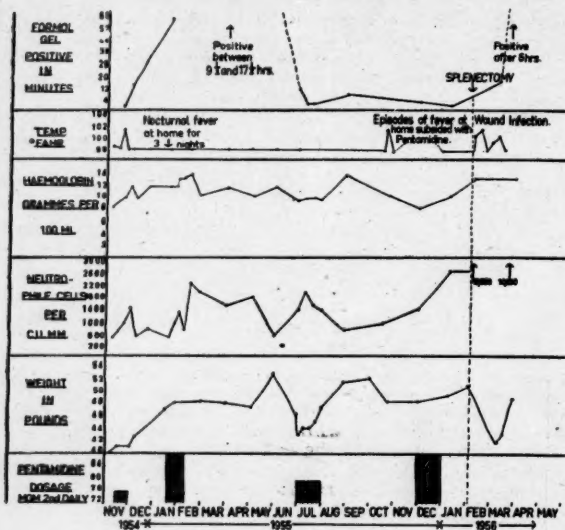


FIGURE 1.

the left mid-clavicular line. The temperature chart showed two "spikes" (to 101° F. at 10 a.m. and 102° F. at 10 p.m.) on the fourth day after pentamidine therapy had been started, and then remained normal.

She was discharged home, apparently much improved, on December 7. On December 20 her haemoglobin value had risen further to 11.5 grammes per centum, but her neutrophile cells remained at the low level of 980 per cubic millimetre (an increase of 359 over the previous figure).

On January 17, 1955, she complained of continuous abdominal pain present for the previous two weeks, and her parents had noticed nocturnal fever for the previous three nights. Her spleen was then palpable six fingers' breadth below the left costal margin in the mid-clavicular line. She was readmitted to hospital. The formol gel test produced a positive result at sixty minutes, and her serum protein content was nine grammes per centum (albumin 4.8 grammes per centum, globulin 4.2 grammes per centum). The neutrophile cell count had fallen, the thrombocyte count was 120,000 per cubic millimetre, while the erythrocyte sedimentation rate (micro method) was 18 millimetres in one hour (see Figure 1).

A second course of pentamidine isethionate was given on the same dosage scale as previously. The erythrocyte sedimentation rate fell slightly, while the neutrophile cell count and her weight rose.

On February 16 a second bone marrow biopsy (Dr. Reye) was reported on as follows:

The films contain no parasites. Hemopoietic elements are normal, apart from alteration in the megakaryocytes, similar to those found in the first preparation on 12th November 1954.

A culture of the leucocyte layer of centrifuged blood on N.N.N. medium produced no growth. She remained well over the next three months, her weight rising; but her neutrophile cell count gradually fell.

On June 27 her weight had fallen (to 46.5 pounds), the formol gel test produced a positive result in fourteen minutes, and her spleen had further increased in size, the lowest point of its edge lying eight to nine fingers' breadth below the xiphisternum. She was therefore readmitted to hospital and given a third course of pentamidine isethionate, totalling 15 injections (July 1 to 29, inclusive). No significant alteration in the haemoglobin value occurred during this course of injections, and the neutrophile cell count was much the same at the end of the course as at the beginning of it (see Figure 1). The formol gel test produced a positive result in four minutes on July 21. A third marrow biopsy (Dr. Reye) on July 27 was reported on as follows:

Megakaryocytes are numerous, with granular cytoplasm and normal platelet formation. There is a shift to the left of the myeloid series, with a normal gradation from immature to mature cells. There is also a normoblastic hyperplasia, with numerous immature cells, but the predominant cell is the late normoblast, and there is a normal gradation through the series. No Leishman-Donovan bodies present.

She was discharged from hospital and remained well, her weight and haemoglobin value rising, though a variable degree of neutropenia persisted over the next few months.

In October, 1955, electrophoretic analysis of the serum proteins was performed at the Clinical Research Institute, Royal North Shore Hospital. This showed a greatly increased  $\gamma$  globulin fraction of which the concentration was equal to, or even a little greater than, that of albumin. There was also an abnormal fraction present in low concentration, intermediate in mobility between  $\alpha_2$  and  $\beta$  globulins.

In November, 1955, weekly attacks of fever recurred. The patient was examined in consultation by Dr. Ralph Reader, who agreed that if a further course of pentamidine did not produce improvement, splenectomy should be carried out. At this time, the formol gel test produced a positive result in five minutes, the thymol turbidity was 14 units, the thymol flocculation was "++++", and the zinc sulphate turbidity was 34 units (normal, one to six units). The serum protein content was 9.5 grammes per centum (albumin 4.2 grammes per centum, globulin 5.3 grammes per centum), while a second electrophoretic analysis still showed a greatly increased  $\gamma$  globulin level.

The abnormality in serum protein levels, and reports of "false positive" responses to the Wassermann test in the presence of such abnormality, prompted the performance of Wassermann and Kline tests; results were negative.

As a fourth course of pentamidine did not produce improvement in the child's condition, splenectomy was performed by Dr. J. Steigrad on February 3, 1956. A firm, plum-coloured spleen weighing 756 grammes, with a number of enlarged hilar lymph nodes, was removed. The spleen measured 7.5 by 5.0 by 2.5 inches, and examination of cross-sections revealed a pale pulp with numerous and unusually large Malpighian bodies.

Microscopic examination of the spleen revealed cellular pulp and very large and active Malpighian bodies. The cellularity of the pulp was caused very largely by accumulations of plasma cells and macrophages, and a high proportion of the macrophages were packed with parasites. Erythrophagocytosis was in excess of that normally found. Microscopic examination of a hilar lymph node revealed hyperplasia of the lympho-reticular cells with considerable plasma cell accumulations, and fairly plentiful parasite-containing macrophages.

During the post-operative period in hospital, the child developed a wound infection, caused by coagulase-positive *Staphylococcus aureus*. A striking response of the bone marrow occurred, the peripheral leucocyte count rising to 23,000 cells per cubic millimetre, of which 19,550 were neutrophile cells (see Figure 1).



When she was next examined at the "follow-up" clinic in March, 1956, the child was afebrile and appeared well. Her weight, which had fallen after operation, had risen again, the formol gel test produced a positive result after six hours, the hemoglobin value was normal, and the neutrophile cell count remained rather high. The thrombocyte count had been intermittently reduced during the illness, but thrombocytes were now, not unnaturally, reported as very numerous.

In April, 1956, further weight gain had occurred, there was no fever, and the blood count was normal.

#### Discussion.

It was decided, when the diagnosis of kala-azar had been established, not to use any antimony preparation to treat the disease because of the considerable hazard of toxicity.

Goodman and Gilman (1955) and Cecil and Loeb (1955) (with the reservation that stilbamidine is more effective, though more toxic) recommend the use of pentamidine isethionate, an aromatic diamidine compound, for the treatment of kala-azar. The disappointing response of this child to four courses of pentamidine, given in the recommended dose of four milligrammes per kilogram of body weight by intramuscular injection every second day, undermines confidence in the claims made for the drug.

The decision to remove the spleen was made for the following reasons: (i) the child showed the criteria of "hypersplenism"; (ii) the hazard of rupture of the spleen following trauma seemed considerable; (iii) it was thought that the spleen might be a reservoir of infection.

It is therefore interesting to note that, although the organism was apparently eradicated from the bone marrow after the first course of the drug, and that repeated marrow biopsies showed no evidence of the organism, yet the spleen was a reservoir of infection which remained unaffected by drug treatment.

As yet, no claim can be made that splenectomy has cured this child, though it has been reported to do so when drug therapy has failed, and relapse is uncommon after splenectomy. One such case of relapse has been reported by Das and Sen Gupta (1950). Nevertheless, her progress since splenectomy is encouraging.

Although this disease has so far been a rarity in this country, the continuing influx of migrants from the Mediterranean area, where the disease is endemic, makes it likely to become more common, and it should be borne in mind in the differential diagnosis of fever, anaemia or splenomegaly in a child from that area.

#### Summary.

1. An historical note is given concerning the discovery and naming of kala-azar.
2. The history of the disease in a girl, aged five years, is described, showing the transitory improvement that occurred following four courses of pentamidine isethionate, and finally the considerable improvement which followed splenectomy.

#### Acknowledgements.

My thanks are due to Dr. R. D. K. Reye, Director of the Nellie May Simmons Department of Pathology, Royal Alexandra Hospital for Children, for his advice, and for the reports on the bone marrow biopsies; to Dr. Ralph Reader, who examined the child in consultation, for his opinion and advice; to Dr. T. C. Backhouse, School of Public Health and Tropical Medicine, University of Sydney, for his advice regarding treatment; and to Dr. F. F. Rundle, Clinical Research Institute, Royal North Shore Hospital, who performed electrophoretic studies of the serum. I am particularly indebted to Professor Lorimer Dods for permission to publish this case, and for his kindly criticism and most helpful guidance in the production of this paper.

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#### A SEVERE CASE OF THYROID DRUG ADDICTION.

By E. A. C. FARRAN, M.D., M.S.,  
Melbourne.

ANY deleterious effects of addiction to drugs is due more to an underlying psychopathic personality change in the addict than to any specific action of the drug. The habit of taking thyroid tablets in doses of up to two grains daily is rather common, and probably does no harm; but when thyroid is taken in excess of this for a long period the effects on the heart, liver and general metabolism become noticeable.

#### Clinical Record.

Mrs. W., aged thirty-two years, had had a phobia about growing fat from the time she was aged fifteen years. She would diet herself and take thyroid tablets when she found some slight increase in weight. She began by taking one grain two or three times a day; after a few years she increased the dose to two and a half grains two or three times daily. In the last two years it had been further increased to five grains, taken three times daily for some months at a time.

In November, 1955, she came under observation for auricular fibrillation with cardiac failure and oedema, associated with malnutrition. She was treated in hospital, with improvement, and while admitting that she had been taking thyroid, she said she had given it up. Despite this, although she continued under medical treatment, her condition regressed, and the improvement that occurred in hospital was not maintained.

In June her condition was reviewed, and apart from the auricular fibrillation the findings were as follows. A blood examination showed that the hemoglobin value was 9.9 grammes per centum and the leucocytes numbered 6000 per cubic millimetre. Liver function tests gave the following results: the prothrombin concentration was 35%; the serum protein content was 6.3 milligrammes per 100 millilitres (albumin 3.4, globulin 2.9 milligrammes per 100 millilitres); the serum alkaline phosphatase content was 17 units; the serum bilirubin content was 0.7 milligramme per 100 millilitres; the cephalin flocculation test produced a positive (++) result; the urobilinogen excreted in the urine was 16.5 milligrammes per 100 millilitres; the zinc sulphate turbidity was 8 units.

It was suspected that the patient was still taking thyroid surreptitiously, and an  $I^{131}$  (radioactive iodine) uptake test was carried out and showed no uptake in the thyroid at all. The patient was not myxoedematous, and it was thought that the thyroid function was being suppressed by the taking of thyroid by mouth. A search in her home revealed a number of thyroid tablets. Confiscation of these resulted in an improvement in her heart and general condition during the next few weeks. The heart rhythm became regular, the oedema less, and she was able to go about.

#### Discussion.

\*There are many references in the literature to addiction to thyroid, but reports of cases are difficult to find. All practitioners see the occasional patient who takes one or two grains of thyroid daily with apparently no ill effects.

Bartel and Higgins (1955), of the Lahey Clinic, report on 10 patients who developed exophthalmic goitre as a result of taking up to two grains of thyroid daily, over varying lengths of time, and make mention of 70 other cases in literature. On the other hand, Farquharson and

Square (1941), by direct experiment on patients, show that the taking of thyroid, up to two grains daily, is compensated by the suppression of normal thyroid activity, but it is only after more than two grains are taken that thyroid intoxication can be induced. "The British Encyclopedia of Medical Practice" (1950) notes that prolonged thyroid intoxication can be a factor in causing some forms of hepatitis and cirrhosis of the liver, a feature that has occurred in this case.

An appraisal of radioactive iodine tests (McConahey *et alii*, 1956) would indicate that the six-hourly uptake in the thyroid gives the best contrast between the normal, the over-active and the subnormal (myxoedematous) thyroid.

In the present case the uptake was nil, and with no clinical signs of thyroid deficiency, could only indicate the taking of thyroid orally.

Despite her improvement, this patient went to the chemist and bought a further supply of thyroid tablets (five grains), after which she was transferred for psychiatric treatment.

#### Conclusion.

This case is recorded to indicate a further use of the estimation of radioactive iodine uptake, and to draw attention to the frequency of thyroid addiction compared with the paucity of recorded cases.

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## Reviews.

**Medical Bacteriology: Including Elementary Mycology and Parasitology.** By Sir Lionel Whitby, C.V.O., M.A., M.D. (Camb.), F.R.C.P. (Lond.), D.P.H., and Martin Hynes, M.D. (Camb.), M.R.C.P. (Lond.); Sixth Edition; 1956. London: J. and A. Churchill, Limited. 8" x 5", pp. 548, with 103 illustrations. Price: 30s.

THE sixth edition of this beautifully produced small text-book of medical bacteriology appeared shortly before the death of the senior author, and after his visit to Australia, where he won wide recognition for his breadth of knowledge and appreciation of the impact of biochemistry upon bacteriology.

The comments made in the review of the fifth edition are still true—that a clear, simple and unpretentious book full of common sense and rich in the "lore of the laboratory" is likely to command a wider appreciation by a general audience than the weighty text-book and a pile of journals to supplement it.

The chapters on infection and the basis of immunity are admirably concise and definite, and the information is assembled in a method very suitable for the learner, with a minimum of technical example, and few but eloquent diagrams and illustrations.

The brief chapter on common contaminating organisms might well be replaced by a discussion of normal flora of the skin and mucous membranes, a knowledge of which is very necessary in this day and age of antibiotic therapy.

The chapter on chemotherapy and antibiotics has been considerably expanded, and a firm statement is made that antibiotic resistance can be acquired *in vivo*, and is permanent; this has been the subject of considerable discussion recently in regard to *Staphylococcus pyogenes*. This chapter in particular seems to fall short of requirements for undergraduate instruction.

The major change in the present volume is, of course, in the section on viruses. There are two general sections on the study and properties of viruses and infection and

immunity, virus diseases being considered roughly in order of size of the infecting particle, and the diseases and their treatment (or lack of it) being covered briefly; the whole section occupies 64 pages.

As usual, J. and A. Churchill's type face is admirably clear and readable, and the book is bound so that it lies flat open at any page, a great convenience.

**Canned Foods: An Introduction to Their Microbiology.** By J. G. Baumgartner and A. C. Hersom, B.Sc., A.R.I.C.; Fourth Edition; 1956. London: J. and A. Churchill, Limited. 8" x 5½", pp. 299, with 35 illustrations. Price: 21s.

THIS is the fourth edition of a small book concerned with the safety of processed and canned foods intended for human consumption—a subject of considerable technical complexity, resting on a relatively small series of principles. These are that the food must be treated, usually by heat, sufficiently to destroy all living organisms within it, without causing deterioration of the food or endangering the health of the consumer. The authors are members of a well-known commercial firm, and the book contains their accumulated wisdom both from the scientific and technical as, well as from the manufacturing side.

Detailed identification of bacteria and fungi which are common sources of spoilage advisedly is not undertaken; only sufficient information is offered to form a reasonable basis for many of the methods outlined in later chapters.

Heat penetration of foods distributed and suitable-sized containers are obviously of prime importance, and techniques for their measurement are discussed carefully, together with reasons for possible failure. Standards for processed articles such as hams are set out, as also are standards for materials in glass containers. Finally the homely "tin" is discussed from all points of view, and there are excellent illustrations of substandard or unsatisfactory samples, together with explanations of the reason for their unsuitability.

This little book should be of considerable value to the food technologist, because it is well equipped with references. It is of value in expounding one aspect of this subject to the general microbiologist, and finally the medical public health officer will find it extremely useful as a book of reference. It is printed with a pleasant type face on good paper.

## Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"World Trends in Cardiology: Volume II, Cardiovascular Surgery", edited by Helen B. Taussig, M.D., and Arthur S. Cain, Junior, M.D.; 1956. New York: Paul B. Hoeber, Incorporated. 8½" x 5½", pp. 77. Price: \$2.00.

Selections from the panel discussions on cardio-vascular surgery at the second World Congress of Cardiology in September, 1954.

"World Trends in Cardiology: Volume III, Blood Volume and Contractile Protein in Heart Muscle", edited by Arthur S. Cain, Junior, M.D.; 1956. New York: Paul B. Hoeber, Incorporated. 8½" x 5½", pp. 141, with illustrations of tables and figures. Price: \$3.50.

A group of papers, presented to the second World Congress of Cardiology, devoted to the physiology of blood volume and the control of the peripheral vascular bed and to the physiology and chemistry of the contractile proteins of the heart.

"World Trends in Cardiology: Volume IV, Cardiovascular Diagnosis and Therapy", edited by Arthur S. Cain, Junior, M.D.; 1956. New York: Paul B. Hoeber, Incorporated. 8½" x 5½", pp. 107, with illustrations of tables and figures. Price: \$3.85.

Eight papers presented to the second World Congress of Cardiology by world leaders in cardiology.

"Glaucoma: Transactions of the First Conference, Princeton, N.J., December 5, 6 and 7, 1955", edited by Frank W. Newell, M.D.; 1956. New York: The Josiah Macy, Jr. Foundation. 9½" x 6½", pp. 251, with illustrations of tables and figures. Price: \$4.50.

Contains papers and discussions covering a review of angle-closure glaucoma, central control of intraocular pressure and physiological and pharmacological factors influencing the resistance to aqueous outflow.



## The Medical Journal of Australia

SATURDAY, MARCH 23, 1957.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

### THE CONTRIBUTION OF MEDICINE TO HISTORY.

THE popularity of Sir Winston Churchill's as yet unfinished history of Britain has drawn attention to the different forms in which historical matter can be presented. Apart from the attractive style, one feature which has conferred this popularity is that the exposition is of the narrative type, and here it may be remarked that narrative history appeals strongly to boys and girls of school age, whilst the more scientific types of treatment do not. Whether history should be handled as literature is a question still hotly debated, but ordinary readers certainly prefer grace of expression to emphasis on detailed factual accuracy and meticulous sifting of causal factors. With some exponents of historical analysis political happenings are in the ascendant and may even suppress the narrative sequence; thus in Aulard's two heavy volumes on the French Revolution there is not one single mention of the guillotine. Then there is economic history, in which considerations of trade, shipping, fishing rights, custom dues and the attraction of the spoils of conquest are given prominence as the main motives for human action. The modern historian refuses to believe that the siege of Troy was the outcome of the beauty of Helen and the desire of the Trojans to avenge her abduction; it was far more likely to have arisen from some sordid clash over fishing or shipping, probably coupled with piracy. Here it may be mentioned that a curious contradiction is to be found amongst the advocates of emotion and those of reason in directing human achievements. Few of our actions are started or guided by reason, according to one school, whereas in the economic view of history self-interest and the acquisition of wealth, which are rationalistic, heavily preponderate over the emotional. Though the First Crusade began with an emotional appeal, it soon was

characterized, as Runciman has recently shown, by considerations of material gain, and subsequent crusades displayed less and less religious spirit.

We have, therefore, narrative, political and economic history; but, strange to say, medical factors are little discussed. Most historians regard the "Black Death" in the fourteenth century as a turning point in English history, for the dearth of labourers caused wages to be almost doubled; but against this are the opinions of a few critics who say that the rise in wages was already in operation and that the heavy mortality arising from the plague only accentuated a process well under way. Apart from this fourteenth century depletion of workers, there is little reference to illness and nutrition in historical works. Reading between the lines, one can realize that most battles were fought by the few survivors from disease. As one writer has put it, when nations mobilized fighting men, they also mobilized lice, and with the lice came typhus fever. Armies from the time of Sennacherib to the Walcheren expedition have melted away often from malaria. Barbarossa's victorious host left few remnants "in the unwholesome marshes of Rome". Typhoid fever raged in the South African war, which is likely to take its place in history as the last campaign in which the casualties from disease were greater than those from weapons of war. These are two of the admitted impacts of medical science on the course of history, but there are others but little investigated and some not even envisaged; for example, one cannot understand the Middle Ages unless one realizes that there was no pressure of population. Rupert Brooke has given us an amusing description of some Canadians boasting about the rapid rise of population in their respective home towns; the English poet, asked to give some figures concerning his own particular township, replied that Grantchester suffered in the Black Death in the fourteenth century but slowly recovered, so that in the time of Elizabeth it had about the same population as when Julius Caesar landed in 55 B.C. A static population produces no desire to emigrate and allows the existence of one church and one monarch. Marriage took place early, generally at the age of about fourteen years in the boy; we see this in the wedding of the eldest son of Henry VII at the age of fifteen and that of the ill-fated Duke of Monmouth in the seventeenth century at the age of fourteen. The fertility was naturally high, but the death rate in infancy was commensurate. Amongst heirs to the English throne who never were crowned we find four Williams, three Edwards, two Arthurs, one Albert and one Alphonso. Five children of Henry III died in infancy, as did four of Edward III and seven of Edward I; Queen Anne probably holds the record, with 17 pregnancies but not a single survivor. Again, as a result of poor winter nutrition, faulty sanitation and exposure to cold and wet, old age came earlier. "Old John of Gaunt, time-honoured Lancaster", who was the embodiment of venerable old age in the fourteenth century when he lived and for a couple of centuries after, died at the age of fifty-nine. Another important consideration is this. Jenner introduced vaccination against smallpox in 1798, and the reduction of this dread disease was immediate. Doctors in the thirties and forties of last century were wont to declare that if a Rip Van Winkle awoke, it would not be the steam engine and its application to manufactures and transport which would excite his wonder, but the clear complexions of the

people, accustomed as he was in his youth to one person in every three being pock-marked. The industrial expansion of Britain would have been impossible had there not been population expansion arising from vaccination. Of course antivaccinationists will deny that vaccination had anything to do with lowering the incidence of smallpox—that trend was already in operation, they maintain; possibly one day they will assert that there was no smallpox or that there was no mortality therefrom.

Our own age is witnessing an increased expectation of life amongst civilized nations, bringing with it a relative decline in the numbers of workers and a relative increase in the number of pensioners—problems which must be faced. This present age is also characterized by the rapid growth of nationalism amongst races formerly accepting colonial inferiority. If the self-government gained leads to the enforcement of Western hygiene, the population pressure of Asia, Africa and Ibero-America will become a major political and social problem, unless birth control on an extensive scale is also adopted. These are obvious difficulties looming ahead, but they are not the only ones. As a minor factor let us think of the economic repercussions of such a small medical triumph as the conquest of the common cold. The annual saving to the State would have to be measured in millions of pounds. Again, aviation medicine is only in its infancy. When Bleriot flew over the English Channel in 1909, he uttered the very wise aphorism that in the future the limitations of flight would be imposed not by the machine but by the physiology of the flier.

It is certainly curious that H. G. Wells in his book "The Work, Wealth and Happiness of Mankind" made no reference to the organization and triumphs of medical science. There are chapters on the conquest of distance, the conquest of hunger, the conquest of climate and man's mastery over force and matter, but not a word about the conquest of disease. This omission may have arisen through carelessness; but it is, alas, likely to have been deliberate, for Wells studied biology in a college of science which had no medical school, and some jealousy of medicine was never far distant. Be that as it may, the gap remains and is certainly arresting.

## Current Comment.

JEAN-ANTOINE CHAPTAL.

It is a reasonably common phenomenon to find a man starting off in one career and changing to another; it is not so common to find such a man making an outstanding success of his work in three or four different fields. Such a man was Jean-Antoine Chaptal, who is the subject of a comment by Pierre Valléry-Radot,<sup>1</sup> the occasion being the bicentenary of Chaptal's birth. It has been almost forgotten that before he became a chemist, Chaptal graduated in medicine from the Faculty of Medicine of Montpellier in 1777. Indeed, it is noteworthy that neither the "Encyclopædia Britannica" nor the French encyclopædia "Nouveau petit Larousse illustré" mentions the fact that he studied medicine; yet, from Valléry-Radot's account, it is obvious that, although he never practised this profession, it had considerable effect on his later activities. Chaptal was born in 1756; he was one of a family which had several doctors among its ancestors, so he entered the Montpellier medical school at the age of eighteen years, in 1774. His orientation towards pure science was early shown by his comment that at Montpellier "practical

medicine was everything; chemistry and botany were only very subsidiary studies". His uncle, a doctor at Montpellier, hoped that his nephew would succeed him; on the pretext that it was not right to embark on the practice of medicine too young, and that one should prepare oneself by a period of research, Chaptal went to Paris and studied chemistry, to such purpose that when he returned to Montpellier, he was offered, and accepted, the newly created chair of chemistry provided by the Royal Society of Science. He even wrote a book, which caused Buffon to comment that Chaptal was one of the greatest scientists of the century. In spite of his uncle's protestations, Chaptal decided to remain a chemist.

His subsequent career was extraordinarily full, and it will be possible here only to present a summarized account of it. He established chemical factories and introduced new processes of dye production, which were so successful that he was appointed by the Committee of Public Safety to undertake the supervision of gunpowder and saltpetre produced in the south of France. Production increased so rapidly that he was later brought to Paris to take charge there. When in December, 1794, the Committee of Public Instruction decided to establish a School of Health at Montpellier, Chaptal was appointed to reorganize the medical teaching. Later, as a member of the Council of State, he gave evidence of such administrative ability that he attracted the attention of the First Consul, who made him Minister for the Interior. This appointment gave him excellent opportunities, for a law of October 20, 1795, made the Minister for the Interior responsible for hospitals. Their reorganization, which was urgently needed, began during the Consulate. Chaptal brought in a number of admirable reforms, particularly at the *Hôtel-Dieu*. There the arrangement was made that two doctors should sort out patients requesting admission, accepting only those who were physically ill, and directing mental patients to the appropriate asylums. This greatly improved conditions at "the first hospital of Paris". In 1801 Chaptal created the General Council of Hospitals and Asylums, which was assisted by an Administrative Commission, and thus brought about unity of administration. This arrangement lasted until 1848, and introduced a new order in the hospitals, whose efficiency was greatly increased by wise innovations and adjustments. It was during Chaptal's tenure of office also, in 1802, that a decree established the house-surgeonship of the Paris hospitals. A further and most valuable innovation during his term as minister was the establishment of the School for Midwives, also in 1802. This helped to raise the standard of a profession that had been discredited since the Revolution, through lack of adequate knowledge and tests of competence. Chaptal always retained a special interest in this school: "Of all the institutions that I have been able to inaugurate during my term of office, this is the one that lies nearest to my heart." He also turned his attention to the teaching of medicine, and he and Fourcroy (a Councillor of State) were responsible for the reorganization of teaching and a tightening up of restrictions on the practice of medicine, which the closing of the universities had abandoned to utter chaos. Proper teaching and the acquiring of diplomas had ceased to be requisites, and anybody could practise the healing art. Now, after laws had been passed in 1803, it became obligatory for any person who proposed to practise as a physician or a surgeon to register at the Prefecture his diploma of doctor of medicine or of surgery. Surgeons who had begun practice since the old order was abolished were now required to obtain the degree of doctor; the degree of master of surgery was no longer sufficient. This had some quaint consequences. Boyer, professor of clinical surgery, who for five years had had theses dedicated to him, had to conform with the law. For the same reasons "Citizen Larrey", surgeon major of the Consular Guard, former professor at Val-de-Grâce and member of the Egyptian Institute, had to pay a thesis fee of 120 francs, half the present amount. This period also saw the establishment of the title of health officer, which remained in existence until 1892. A law of April 11, 1803 (which remained in force until September, 1941), dealt with the practice of pharmacy. Pharmaceutical chemists

<sup>1</sup> *Presse méd.*, December 26, 1956.



with open shops were now obliged to obtain a diploma from one of the three schools established for this purpose at Paris, Strasburg and Montpellier. As might have been expected, Chaptal was the one who suggested to the First Consul the professors for the new school at Montpellier.

In recognition of all his services, Napoleon granted Chaptal the title of Count of Chanteloux—the name of a property which he owned. Thereupon, having been, as he put it, "restored to private life and rest", Chaptal returned to his favourite study, and published six books on the application of chemistry to the arts and to agriculture. He was sent to Lyon in 1814 on a special mission, and once more showed his qualities of organization and administration. A little later he was appointed Minister of State and Director-General of Agriculture, Commerce and Industry. This remarkable man, who during his lifetime capably invaded so many professions, died in 1832. It is good to remember that he was a doctor.

### HEART SOUNDS, CARDIAC PULSATION AND CORONARY DISEASE.

PROFESSOR WILLIAM DOCK has an enviable reputation for originality, frankness and humour. His interests have covered many unrelated fields, but in the main now seem to be focused on the mechanics of the circulatory system. At any rate, two of three Porter Lectures,<sup>1</sup> delivered recently by him at the University of Kansas, are concerned with cardiac sounds and pulsations. These lectures are now published together under the title of "Heart Sounds, Cardiac Pulsations and Coronary Disease", and reveal the author's talent for succinctness. For example, not many lecturers would be bold enough to attempt in a single lecture, as Professor Dock does, to describe the nature and significance of all pulsations evolved by the cardio-vascular system, and then to proceed to a digest of current ballistocardiography. He begins with a plea for the more frequent recording of local pulses, including that of the apex beat, and the use of the electrokymogram, one or more of which may give information of so decisive a nature as to obviate the necessity for more expensive and time-consuming procedures. A pithy description of the atrial (jugular) pulse draws attention to the neglected "h" wave, a small peak due to sudden arrest in the fall of atrial pressure, after the atrio-ventricular valves open—that is, just after the second heart sound, and corresponding in time with the third heart sound. The "h" wave and third sound are most obvious in youth, when the great veins and atria have an elastic quality. The "h" wave may reappear in right-sided heart failure, simultaneously with proto-diastolic gallop rhythm. Records of the carotid pulse and the kymogram of the great vessels have been helpful in revealing atypical disease of the semilunar valves or deformities of the aortic root. Dock reminds us that cardiac pulses are a complex of recoils, shocks and rotatory or pendular movements rather than the result of the motion of isolated ventricles as such. He calls the ballistocardiogram the "big pulse" and pays a tribute to Isaac Starr, who has spent half a lifetime exploring its significance. In a lucid and concise manner, Dock proceeds to survey the various techniques for recording these forces, either in a head-foot axis or in all three dimensions. He favours the simple instrument of which he was part author, namely, the coil of wire resting on the shins, and moving in the field of an electromagnet attached to the table. This measures velocity of body displacement at each heart beat, and Dock describes the system as "theoretically absurd but clinically useful". The electrocardiogram is used as the reference tracing. The first lecture concludes with a description of the main characteristics of the ballistocardiogram in health and disease—almost a text-book in miniature. Professor Dock is obviously an enthusiast for this form of investigation, and

believes that it may have prognostic importance in coronary artery disease.

The second lecture concerns itself with the production of sounds by normal and diseased hearts. After a short historical introduction, the influence of the phonocardiograph upon the study of heart sounds rather than heart murmurs is discussed, and reference is made to the exposure by this instrument of inaudible vibrations of low frequency, which form regular components of the first heart sound. Dock has shown that there is an inaudible mitral component of the first heart sound in auricular fibrillation, which may be muscular or extracardiac in origin. The real first sound, as heard by the stethoscope, is now generally accepted as arising in the valve cusps and their appendages, namely, the "closing snap", with an intensity varying according to the position of the cusps at systole. In the presence of mitral stenosis the first sound is never split, because the tricuspid element is mute, and the bicuspid or mitral element is late. The vascular origin of the systolic click or third element of the first heart sound, we are told, is heard best near the pulmonary artery, and the fourth element is merely some inaudible mechanical vibration associated more with ballistocardiographic forces than with valve or muscle activity as such. Dock encourages us to auscultate over the jugular bulb for audible auricular activity, as proof of the presence of normal sinus rhythm. A picturesque description of the origin and types of gallop rhythm is followed by a convincing portrayal of the valvular nature of the additional sound. By his own experiment, he has shown that there is no sonic quality in a tensely stretched muscular wall, such as many have postulated as the cause of gallop. Most gallop and third sounds, he writes, seem to be due to the tensing of the atrio-ventricular valves during reflux after rapid filling. Comparison of phonocardiographic records with ballistocardiograms in cases of gallop rhythm is confirmatory of his views, and no better discussion of gallop rhythm could be found. The lecturer's licence allows him to spend more time on his own work and experiments, but it is a pity that the remainder of the lecture has to be so condensed as to call for very considerable and deliberate concentration by the reader.

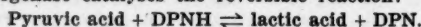
The third and last lecture is in lighter mood, as befits all last lectures. It concerns "Coronary Disease—the Professor's Friend". The professor concerned is, firstly, Sir William Osler, who applied the description to pneumonia, as in his day coronary disease was not the lethal force it is today. But Dock truly states that coronary disease has entirely replaced pneumonia as the merciful executioner of the old, and he suggests that we should live on "good terms" with this disease. The reason for this advice is not clear, unless it is to accept philosophically our obvious fate, whether this final blow results in long suffering or a sudden release. It would be better to review the increasing knowledge of likely aetiological factors while we are still healthy, in case something can be done either collectively or individually to reduce the mounting mortality from the disease. Dock draws attention to the more lavish scale of living today, to the occurrence of the disease in earlier decades, and to the possible influence of cigarette smoking in young men. He points out the role played by the electrocardiograph in making both doctors and patients conscious of the frequency and disguises of this modern scourge, and proceeds to trace the stumbling path followed by physicians through the ages towards its recognition. He blames earlier generations of physicians for obstinately failing to accept the frequency of the disorder insisted upon by the pathologist. Resistance to the relationship of the lesions in animals to cholesterol feeding continued undiminished up to 1954. Since then army pathologists, epidemiologists and statisticians have put beyond all possible doubt the facts that one important relationship is to the proportion of fat in the daily dietary and that this influence can outweigh racial and environmental factors. Obesity as such has little effect. Substitution of vegetable for animal fat can lower blood cholesterol levels and may have important implications for the future. Dock admits that metabolic and physical activity are probably valid factors, and explains sex differences in the incidence of coronary

<sup>1</sup> "Heart Sounds, Cardiac Pulsations, and Coronary Disease", by William Dock, M.D.; Porter Lectures, Series 21; 1956. Lawrence: University of Kansas Press. 8½" x 5½", pp. 110, with illustrations. Price: \$2.50.

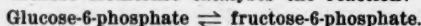
disease on the grounds of thicker coronary arteries in the male, which may predispose them to atheroma, although he admits the extraordinary effects of oestrogens in lowering serum lipid values. He agrees that our knowledge of atheroma formation is still rudimentary and that many would not change their comfortable habits at the present stage of our suspicions. After all, he writes, a coronary death awaits only one-third of American physicians and may spare them a lingering or more distasteful finale. That is, however, the difficulty—the professor may be young, the sword may wound, not kill. Perhaps a better title for this stimulating, realistic address would have been "Coronary Disease—a Potential Friend to Old Professors and Their Young Successors".

#### SERUM LACTIC DEHYDROGENASE IN MYOCARDIAL INFARCTION.

LIVING CELLS contain a large variety of enzyme systems, and when cells become necrosed some of these escape into the blood and can be estimated by fairly simple means. In the "Current Comment" column in the issue of November 19, 1955, an account was given of the use of estimation of serum glutamic oxalacetic transaminase in the blood of patients who had very recently had a myocardial infarction. It was shown that the method, while unspecific, was very useful in diagnosing infarction when taken in conjunction with clinical signs. The method had certain disadvantages, one being the difficulty in estimation and another the short time elapsing between the infarction and the disappearance of the excess enzyme from the blood. L. P. White<sup>1</sup> has compared serum levels of glutamic oxalacetic transaminase, lactic dehydrogenase, aldolase and hexose isomerase in 50 patients in whom the diagnosis of myocardial infarction was entertained. Lactic dehydrogenase catalyses the reversible reaction:



Pyruvic acid is used as the substrate and lactic acid estimated by a comparatively simple method. Aldolase catalyses the splitting of fructose-1,6-diphosphate to d-glyceraldehyde-3-phosphate and dihydroxyacetone phosphate. Hexose isomerase catalyses the reaction:



White's patients were divided into several groups: group A, of 24 patients, in whom a clinical diagnosis of recent (within one week) myocardial infarction had been made clinically or by autopsy or both; group B, of seven patients, with a diagnosis of infarction made more than a week previously; group C, of 19 patients, with suspected infarction not confirmed clinically. Of the 24 patients in group A 12 were found to have abnormal serum levels of glutamic oxalacetic transaminase. Twenty-two patients were tested for serum content of lactic dehydrogenase, and in all cases the level was abnormally high. Abnormally high values were also obtained for 11 of 17 patients tested for serum aldolase content and for 10 of 13 tested for serum hexose isomerase content. One patient had raised values for lactic dehydrogenase and hexose isomerase, but not for glutamic oxalacetic transaminase and aldolase. A week later he died from a ruptured aneurysm, and post-mortem examination showed a small infarct. Of the patients in group B only two showed a slight increase in serum values for lactic dehydrogenase. Positive results were shown with the different enzyme systems by a large number of patients with diseases other than heart disease, such as disseminated cancer and progressive muscular atrophy; so the tests are unspecific but useful when considered in relation to clinical signs and symptoms. The determination of serum lactic dehydrogenase content has several advantages over estimations of the other enzymes investigated. No false negative results were given with lactic dehydrogenase, but they were obtained in glutamic oxalacetic transaminase estimations. After myocardial infarction the serum levels of lactic dehydrogenase remained raised for periods considerably longer than those of glutamic oxalacetic transaminase,

aldolase or hexose isomerase. The estimation of lactic dehydrogenase is simpler than that of the other enzymes, but great care must be taken in collecting the blood sample, for lysis of red blood corpuscles sets free much lactic dehydrogenase.

#### THE DRUG ADDICT AS A PATIENT.

An interesting approach is made to a subject which bristles with difficulties in a small book by M. Nyswander<sup>1</sup> on the problem of the drug addict as a patient. Although Nyswander does not minimize the failures that have occurred and may be expected to occur, she still contends that by obtaining a better appreciation of the patient's point of view new therapeutic horizons are opened up. Her findings have a bearing on the question of future addiction in Australia, although the book is primarily written for Americans. Considerable attention is paid to addiction in the United States, where the rate is high. The number of those involved is estimated to range from 60,000 to 1,000,000 people. Nyswander lays the blame for these large numbers on ill-planned legislation enacted during the early years of this century. The production, manufacture and distribution of drugs of addiction were then banned by law, but no provision was made for treatment by the medical profession. Almost overnight the addict became a criminal driven to satisfy his cravings by illicit means. Nyswander finds a praiseworthy contrast to this in the English system, which has left treatment in the hands of the medical profession and thereby avoided the encouragement of countless "agents", who have used a black market and, in search of gain, have induced people of all ages to become addicts.

The problem of relapse is dealt with sympathetically in this book. Nyswander mentions that obsessional drives occur as normal processes in man's relentless striving for security or advancement. Often they exclude the family and friends. It is suggested that the drive of the drug addict for security through the needle has a similar basis. The differing effect on behaviour of alcohol and other drugs is well brought out. Nyswander points out that whereas the alcoholic "gets drunk, goes home and beats up his wife, old doxy takes a shof, goes home and his wife beats him". The point illustrates the fact that alcohol reduces inhibitions, whereas opium blunts hostility and aggressions. However, if one is to understand addiction, a basic requirement is to understand the patient's personality. Steeped in narcissism, he has no time, energy or thought to spend on other people; he neither gives of himself nor has pleasure in satisfying another as a love partner.

Turning to the questions of diagnosis and treatment, Nyswander points out that the addict can be such an adept at outwitting the doctor that the distinction between the real and the simulated symptom is impossible. Nevertheless, as doctors we should assume that illness is real until this is proved otherwise. "Nalline", a derivative of codeine developed in the Merck laboratories, may prove a valuable diagnostic aid. In individuals who have been regularly receiving morphine, withdrawal symptoms set in within half an hour after the injection of "Nalline". Such a drug could be employed in hospital or consulting room. Methods of treatment are described under the four following headings: (i) The abrupt "cold turkey" withdrawal, which is severe and should be used only at the direct request of the patient. (ii) Abrupt withdrawal with substitute therapy, by means of such drugs as hyoscine, insulin or calcium gluconate, a procedure which often creates difficulties; chlorpromazine as a substitute is more promising. (iii) Withdrawal with gradual restriction of morphine, which is less severe than the abrupt method. (iv) Withdrawal with "Methadone", which consists in stabilization of the patient on morphine followed by the substitution of "Methadone" in its place. With every method severe withdrawal symptoms can be alarming, and there is need for efficient nursing. However, even when success is achieved, this is only the prelude to the even

<sup>1</sup> *New England J. Med.*, November 22, 1956.

<sup>1</sup> "The Drug Addict as a Patient", by Marie Nyswander, M.D.; 1956. New York and London: Grune and Stratton, Incorporated. 8½" x 5½", pp. 190. Price: \$4.50.



more difficult phase of rehabilitation. The addict with his immature personality needs a sympathetic crutch to make contacts with the outside world and its community agencies. The physician must undertake a crutch role with warmth, friendliness and understanding. He must be prepared to help an individual who fears society, anticipates failure and is prone to relapse. Fortunately a religious adviser and "Narcotics Anonymous", an organization modelled on its alcoholic counterpart in the United States, have often been found to be helpful. Nyswander writes well, and her book can be read with advantage by any practitioner who has the medical care of an addict or who is interested in legislative action concerning addiction.

#### AN OPHTHALMIC SURVEY OF PAPUA AND NEW GUINEA.

THE incidence of trachoma is high in certain parts of Australia, especially amongst the aborigines. This fact, which flatly contradicts a widely expressed view that trachoma is at present non-existent in Australia, was established by surveys carried out by Ida Mann in 1953 and 1954 in the Kimberley District and in the Eastern Goldfields and the desert of Western Australia; extended reference to the first of these surveys was made in a leading article in this journal in the issue of June 10, 1954. The problem then arises of where the disease came from. This has been considered in a most interesting fashion by Ida Mann and T. Loschdorfer in the report of an ophthalmic survey which they carried out in the Territory of Papua and New Guinea in 1955. This report has been printed in Port Moresby for the Territory of Papua and New Guinea. In it Mann and Loschdorfer point out that trachoma is a disease of ancient origin. It has been held that there were two early foci of dissemination, one in the Nile Valley and one in Mongolia. Be that as it may, it was well known in ancient Egypt and around the Mediterranean in Biblical times. It was possibly introduced into England by Crusaders returning from Palestine, and was spread to the New World by early English settlers. It is widespread in most parts of Asia. Mann and Loschdorfer suggest three possibilities to explain how the Australian aboriginal became infected. First, on the unproven assumption that the race has not been on the Australian continent much more than 6000 years, it may be that the aboriginal came from an area already affected and brought trachoma with him. A high incidence of trachoma in surrounding continents and islands would favour this. Second, infection may have resulted from exchanges across the Torres Straits. In this case one would expect it to be endemic in all the islands. Third, it may be of recent origin, introduced by early English and European settlers. There is much to favour this possibility, but the strongest evidence comes from the findings of the survey in Papua and New Guinea.

The survey took four months and covered much ground, but was by no means comprehensive. Of 13,751 persons examined, 13,268 were suitable for inclusion in the final analysis; the majority were full-blood natives, apart from a few Chinese communities and the Kambli community (coloured people of other races than Chinese or Papuans). Only approximately 1% of the total native population of the Territory was examined, but Mann and Loschdorfer state that by concentrating on certain areas, as dissimilar as possible from one another, they were able to build up a picture of the variation of the disease pattern (particularly in respect of trachoma) from place to place and its relation to geographical conditions. The report sets out what are described as "brief notes" on a few of the types of people examined. These are of great interest. We cannot enter into them now, but commend them to our readers as providing a bird's-eye view of a representative group from the widely diverse peoples of the Territory.

The equipment carried for examination purposes was modest but adequate, and the findings include a thorough description of the normal eye of the native as well as that of the newborn child. The main disease condition found in the eye was trachoma (7165 cases), and we need only

mention that there were 381 cases of pterygium, 378 of corneal scars including perforating and non-perforating ulcers and injuries, 225 of follicular reaction other than trachoma, 136 of senile cataract, 107 of concretions not associated with trachoma, and 95 of conjunctivitis other than trachoma and follicular reaction. Most interest attaches to the findings on trachoma. Mann and Loschdorfer state that the diagnostic essential in trachoma is the involvement of the corneal epithelium and the tendency to heal by scar formation. Therefore, for the diagnosis of trachoma, extension of vessels from the loops at the upper limbus must be present, follicles may or may not be present, and if there are no follicles then there must be at least some scarring of the palpebral conjunctiva or fornix. Pannus is the sign of most value, although rarely (for example, in very early cases) it may be absent. It is important to note the quoted statement of R. Ching that uncomplicated trachoma is mild, insidious, frequently self-limiting, not highly infectious, comparatively harmless and due to a filterable virus specific for conjunctival and corneal epithelium. On this basis, earlier impressions culled from observations in Egypt are seen to be erroneous in that they imply a disease of much greater severity; the severe effects are, it seems, the result of secondary infection. The same classification of the disease was adopted as that used by Mann in her Australian surveys.

The results of the Papua and New Guinea survey are set out in detail in a series of tables. From a study of these both the severity of the disease and the length of time it has existed can be estimated. Mann and Loschdorfer state that since we know that, in a population where it has been endemic for a long time, most patients become infected early in life, we can arrive at a rough guess that it has been only recently introduced if the age groups in which it is still active include those over thirty. From this and certain other criteria applied to the findings in different groups, Mann and Loschdorfer think it likely that trachoma has been brought into the Territory from outside, via the coast and New Britain and New Ireland. Within historic times the natives in these areas could have had contact with many outsiders: early explorers, early traders, missionaries, Malays, European migrants (first German and later Australian), Chinese, gold prospectors, Torres Strait Islanders, seafaring Kiwi people from Indian ports and probably other Pacific Islanders. Most of the outside contacts were with people who themselves are known to have had trachoma in the past; but the evidence suggests that the most certain source of trachoma was the European and Chinese settlers on the Gazelle Peninsula, where the most severe trachoma is still to be found. From the Gazelle Peninsula one can trace the spread, via native and Chinese labourers and by European traders and prospectors, first to the other islands (New Ireland, Manus, Kiriwina *et cetera*), then to the coast of the mainland, and finally to the Highlands and the still incompletely explored regions inland. This provides strong support for the view that trachoma was not endemic among Australian aborigines at the time when they were discovered. As Mann and Loschdorfer suggest, it is likely to have been introduced in the same way (via European and Chinese immigrants) at various times throughout Australia.

The consideration of trachoma in the report concludes with some interesting comments on arrest of the disease. It is pointed out that we now have suitable treatments, continually being improved, we are aware of its relation to a low standard of living, and we understand its mode of spread. Campaigns for its eradication are in progress in many parts of the world. Much could be done to prevent further spread by the mass prophylactic treatment (with sulphonomides) of returning labourers and by the routine examination and treatment of all school children. This disease is usually contracted in childhood; if it could be made an ideal that no child should leave school with the active stage, we should go far towards protecting future generations. Mann and Loschdorfer point out that mass treatment of all infected persons in the Territory is obviously out of the question and indeed is not desirable; but it is to be hoped that something can be done about the limited measures which they do advocate.

## Abstracts from Medical Literature.

### PÆDIATRICS.

#### Third Degree Burns in Children.

I. MEEKER, JUNIOR, AND W. SNYDER (*Surg., Gynec. & Obst.*, November, 1956) describe a technique of dermatome debridement to remove burn eschar in extensive third degree burns, which permits early grafting and more rapid wound closure, and has resulted in a more than 60% reduction in length of stay in hospital. They state that this was achieved without incurring massive blood loss or destruction of viable skin as may occur with other forms of surgical debridement. To protect against wound infection, they employ bacteriostatic dressings with tetracycline hydrochloride, which are applied continuously during all phases of treatment until the growth of epithelium is complete. After such debridement, which is performed in stages when necessary, early extensive grafting with split-skin grafts is employed. The authors state that the pain and suffering experienced by the patients are immeasurably reduced, the nursing care imposed on the surgical and nursing staff is eased, and the time of stay in hospital is much less—in many cases by many weeks and in some cases by several months.

#### Supracondylar Fractures of the Humerus in Children.

W. LAWRENCE (*Brit. J. Surg.*, September, 1956) has reviewed 100 cases of supracondylar fracture, and agrees with the statement of Vernon P. Thompson, made in 1951, that the supracondylar or transcondylar fracture is above the elbow joint. If the surgeon does not manhandle the elbow-joint with repeated forcible manipulations, or insult it by open surgery, there will be useful elbow motion. There may be deformity, there may be limitation, but there will be useful elbow-joint motion. The average age of the children included in the author's review was 6.5 years, the youngest being two and the oldest eleven years old. The average time required for union was three weeks, and for the restoration of full movement eight to twelve weeks. Manipulative reduction was carried out under general anaesthesia with serial radiographic control. The manoeuvre of traction with flexion was used, and the elbow was immobilized by a posterior slab and strut, the slab being held in place by cotton bandages. This allowed maximal swelling without risk of circulatory involvement. The children were admitted to hospital for observation, and as there is a tendency for the fracture to slip up to the fifth day, a check X-ray examination was made then. As a rule, no more than two reductions were carried out, and if the fracture slipped a third time, the position was accepted. In six of the cases the radial pulse disappeared after reductions, but the circulation to the fingers was clinically satisfactory. Slitting the cotton

bandages with elevation of the arm was the only treatment used, and in no case did an ischemic lesion develop. Four patients suffered median nerve impairment, and in all four sensory recovery was complete in seven or eight months. Reduction must be carried out as an emergency before gross swelling occurs. If reduction is delayed and severe swelling has occurred, elevation by slinging in plaster is recommended. If the backward displacement cannot be corrected, the normal carrying angle should be restored. Because of the capacity of the bones to remodel themselves, it is probably never necessary to undertake open reduction for the fracture itself.

#### Correction of Tetralogy of Fallot Defects.

C. W. LILLEHEI, M. COHEN, H. E. WARDEN AND R. L. VARCO (*Arch. Surg.*, September, 1956) pay tribute to Blalock and Helen Taussig for their imaginative anastomotic operation for tetralogy of Fallot defects and to Robert Gross for his stimulating work on this condition. They state, however, that the only logical goal in any individual patient is the complete correction of all the existing cardiac defects. The advent of a reliable technique for total bypass of the heart and lungs during prolonged periods has made possible the performance of curative surgery for a variety of cardiac lesions. Without a direct vision intracardiac approach they have remained incurable. At the Heart Clinic, University of Minnesota Medical School, no anastomotic procedures for tetralogy have been deemed necessary during the two years since the advent in August, 1954, of curative surgery for these defects. In detail the authors describe the case of a seventeen-months-old boy who was the first patient to have the tetralogy of Fallot defects corrected with objective post-operative studies to corroborate his normal clinical appearance. This child was subjected to curative surgery with employment of the technique of controlled cross-circulation and utilization of the patient's father as donor. When the pump was in action, the heart was opened, and the ventricular outflow tract was resected generously. The pump was in action for nearly twelve minutes. The result was excellent, and the underdeveloped, intensely cyanotic, irritable infant, who was extremely dyspnoeic, became a healthy, active, normal child. The authors state that in the interim an effective simple portable oxygenator has supplanted the cross circulation technique for oxygenation. Among the 130 patients operated on to date with total body perfusion by means of this pump oxygenator, 29 patients with the tetralogy defects have had the corrective operation. There have been 20 successes.

#### Surgical Complications of Meckel's Diverticulum in Infants and Children.

C. D. BENSON AND L. M. KINKNER (*Arch. Surg.*, September, 1956) review the records of 60 patients in the paediatric group who demonstrated surgical complications of Meckel's diverticulum. The ages of the patients ranged from one day to fourteen years; 27 were five years of age or younger. The complications

encountered in order of their frequency were intestinal hæmorrhage, abdominal pain, acute intestinal obstruction, umbilical fistula and perforation with peritonitis. Of the 60 infants and children operated upon, four died. It is of interest to observe that of these 60 patients, 42 had a diverticulectomy performed. The remaining 18 needed resection of the diverticulum and a portion of the attached ileum. The indications for ileal resection were: (i) a wide base in which simple closure would compromise the ileal lumen; (ii) an irreducible ileo-ileal intussusception due to an inverted Meckel's diverticulum; (iii) volvulus with gangrenous intestine; (iv) marked thickening of the base of the Meckel's diverticulum due to ectopic tissue.

### ORTHOPÆDIC SURGERY.

#### Avascular Necrosis Involving Articular Surfaces.

W. E. COLLIE (*J. Bone & Joint Surg.*, July, 1956) states that when a portion of the articular surfaces of a joint is broken free and is completely detached from its circulation, the portion which is composed of bone dies, but the portion composed of articular cartilage survives. This has been repeatedly noted in the heads of femora which have been removed when union has failed to occur. In these cases the head of the femur will be found to be covered with living hyaline cartilage, whereas the subjacent bone will be avascular and necrotic. The hyaline cartilage is able to extract what it needs for the survival of its cells from the joint fluids, whereas the bone cells in their lacunae and in the Haversian canals cannot survive without the circulation of blood. The subsequent history of such necrotic bone has been studied exhaustively. It is known that if circulation is reestablished the dead bone will be invaded by myriads of active osteoblasts, which will absorb the dead tissue and ultimately replace it with living bone. There is a limit to the distance that the process of revascularization and replacement can with certainty be expected to advance. If, however, the distance the invading process has to advance is not too great (for example, not more than a third of an inch), perfect healing of the fracture and a resulting normal articular surface may be anticipated. The principle of transplantation of articular cartilage is sound. This has been demonstrated in an operation which the author has used for many years for the correction of *hallux valgus*, and also in cases of injury to articular cartilage where detached fragments of cartilage with subchondral bone have been reattached at operation with resulting full recovery. In view of these results, the author advocates that debridement or replacement of detached autogenous articular surfaces should be carried out when the opportunity arises, especially in the surgical treatment of injuries. He concludes that with the clear evidence that an articular surface can be transplanted successfully, inspiration should be sought from the study of the great principles of



anatomy and physiology, which govern all living processes, rather than from the comparatively simple mechanics of the machine shop in the performance of arthroplasty.

### The Putti-Platt Procedure.

COLONEL E. A. BRAV (*J. Bone & Joint Surg.*, July, 1955) has studied the two-year functional end-results of 41 Putti-Platt reconstruction operations. These confirm that this method is effective in the treatment of recurrent dislocation of the shoulder, regardless of the aetiology or of the pathological changes. The procedure is available to any qualified surgeon, and no special surgical equipment is required. The simplified operation has been as successful as the original technique and has the advantages of decreasing the length of the incision, lessening the amount of tissue trauma, minimizing intraarticular operative damage, and shortening both the duration of the operation and the period of rehabilitation. The author states that shoulders in which original traumatic dislocation has occurred should be completely immobilized for a minimal period of four weeks, regardless of the mechanism of injury, in order to reduce the possibility of recurrence. Dislocations which are spontaneous will probably recur with or without immobilization. Operative correction should be reserved for disabling recurrences in young individuals who are willing to accept the attendant post-operative limitation. Because of the friability of the soft tissues secondary to the trauma of dislocation, operative repair should not be attempted in less than thirty days after any recurrence. Since in all three of the operative failures the patients had persistent limitation of external rotation, the author suggests that the effectiveness of the procedure is due principally to the resistance given to the anterior thrust of the humeral head by the operative scarring, and by the shortened capsular and muscle structures and not to the limitation of external rotation.

### Complete Muscle Transposition.

E. R. SCHOTTSTAEDT, L. J. LARSEN AND F. C. BOST (*J. Bone & Joint Surg.*, October, 1955) introduce a variation of one established procedure of muscle transplantation. A portion of the *pectoralis major* is added to the biceps by a transposition of the origin, or of both origin and insertion, of the muscle. The authors suggest several applications of the same principle to other muscles. They describe procedures which are based on the concept that a muscle may be freed at both its origin and its insertion during the same operation and that it may be shifted to a new location where it will function successfully, provided that its nerve and blood supply remain intact. The procedures which have been successfully carried out include transposition of the lower two-thirds of the *pectoralis major*. The transposed muscle extends from the coracoid process of the scapula to the tuberosity of the radius and reinforces, or replaces, elbow flexion. The *pectoralis major* has also been transposed to extend from the mastoid process down to the third and fourth ribs and

so to reinforce neck flexion and head balance. The *latissimus dorsi* was transposed to extend from the coracoid process of the scapula down to the tuberosity of the radius and so to reinforce or to replace elbow flexion. The same muscle has also been transposed to extend from the acromion to the olecranon to reinforce or to replace elbow extensors. The sterno-mastoid muscle was transposed to extend from fascia anterior to the ear and the outer zygomatic arch to the lips, replacing the *orbicularis oris*. The same muscle was transposed to extend from the malar process to the mandible to replace masseter function. Operative procedures are described in detail and indications and contraindications are enumerated.

### Fractures of the Odontoid Process.

N. J. BLACKLEY AND D. W. PURSER (*J. Bone & Joint Surg.*, November, 1956) review the literature on fractures of the odontoid process of the axis. They analyse 11 cases of their own and 40 others, considering anatomical and clinical features of the injury. They consider that it differs in children in that non-union is common and the dangers are exaggerated. In the literature considered these fractures were usually related to injuries of the atlas. The process was often avulsed through its weaker base by the alar ligaments, which are tight in extremes of movement of the neck. The odontoid process develops from two ossific centres, which fuse at six years of age, and are seen as a blemish in the base at seven years of age. There were reports of late paraplegia and suggestions that fusion should be performed, particularly as bony union was often delayed or absent. In their review of the cases the authors found that children under the age of seven years always had an epiphyseal separation; union occurred, and irregularities were corrected by growth. In adults fracture was through the base of the bone, either transversely or obliquely. At this site the cortex is thinner. The displaced fragment is grasped by the anterior arch of the atlas and the transverse ligament. The alar ligaments bind the tip of the odontoid to the occiput, normally holding the occiput to the cervical vertebrae. The capsules of the atlanto-axial joint are loose. Hence the atlas will subluxate immediately or later. Forward displacement of the process was more common in this series. Considerable violence is necessary to cause a fracture; falls or motor accidents were the common causes. Usually the point of impact is on the head. If on the back of the head, it forces the process forward; if on the forehead, it drives it back. Clinically there were few features. Pain was in the occipital region and accentuated by movement. The head may be held in the hands. The injury is often fatal, and there may be evidence of damage to the cord or medulla and incomplete tetraplegia. The authors consider that there was evidence of slipping in all cases. The patients had not received what they considered was adequate treatment in the early stages of the fracture, as usually there was no immobilization. Of the cases followed-up, in 22 of 35 there was failure of bony union. This was a

high rate of non-union. No early treatment was received in 16 of these cases. Bony union occurred when immobilization was continued for at least three months or when fusion of the spine was performed. Fibrous union was considered safe. The firmness of this fibrous union was tested by radiographs in full flexion and extension. Treatment was by Crutchfield calipers inserted with local anaesthesia; gradual distraction was employed over twenty-four or forty-eight hours, then reduced by flexing or extending the head with pillows. The weight was then reduced. A minerva plaster was applied after six weeks.

### Degenerative Shoulder Lesions.

J. S. NEVLASER AND S. H. EISENBERG (*Bull. Hosp. Joint Dis.*, November, 1956) review the various degenerative shoulder lesions from the anatomic-pathological level. They state that Codman, in 1934, indicated that the changes found in the subacromial bursa were secondary to capsular and musculo-tendinous cuff lesions. In the last decade the literature has referred to lesions of the biceps tendon and capsule, and to the "periarticular personality". The shoulder joint is unique. Its stability depends on soft structures, the capsule and cuff in particular. The capsule is loose and redundant inferiorly. The capsule and cuff are adherent in adult life, but separated by areolar tissue in infants. Also in children the muscle fibres of the rotator cuff extend almost to the insertion. Calcific tendinitis is the most common degenerative lesion. Calcium is found in the cuff, close to the insertion. In the acute phase it is similar in constitution to toothpaste. The tendons are swollen. Pain occurs when this mass is forced under the coraco-acromial arch. Microscopic examination shows swollen fibrous tissue cells, vascular hyperplasia and perivascular round-cell infiltration. The subacromial bursa is secondarily involved, and distended with fluid; this may reabsorb with relief of symptoms. The areas about the calcium may be revascularized and reabsorbed, or less frequently calcific material may rupture into the bursa. This may leave an aching pain, leading to voluntary restriction of movement and the ultimate development of adhesive capsulitis. Later the calcium becomes dry and gritty and continues to act as a source of irritation with surrounding fibrous tissue hyperplasia. This hyperplasia may be an instigating factor in the development of adhesive capsulitis. Immobilization is the common denominator in development of adhesive capsulitis following other causes. Pathologically there is little joint fluid, and the normal redundant folds of the capsule are adherent to the humeral head. This was observed to peel off the head during manipulation in the same way that adhesive tape peels off the skin. No articular disturbance of the head was noted. The subdeltoid bursa showed varying degrees of inflammation. The capsule was consistently inflamed. As the biceps tendon sheath is a true extension of the capsule, it was often associated with synovial adherence, and the tendon might be fixed in the groove. It was considered to be secondary to the capsular abnormality.

## British Medical Association News.

### SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on August 30, 1956, at the Robert H. Todd Assembly Hall, British Medical Association House, 135 Macquarie Street, Sydney, Dr. G. L. HOWE, the President-Elect, in the chair.

#### Psychosomatic Factors in Obstetrics and Gynaecology.

Dr. C. L. CHAPMAN read a paper entitled "Psychosomatic Factors in Obstetrics and Gynaecology" (see page 379).

Dr. D. W. H. ARNOTT read a paper entitled "The Psychosomatics of Obstetrics and Gynaecology" (see page 380).

Dr. F. A. BELLINGHAM said that Dr. Arnett was apparently a great exponent of Grantly Dick Read's methods. Obstetricians were not entirely "sold" on the idea, but thought it had a definite place in obstetrics.

Dr. G. L. HOWE said that he agreed with what Dr. Bellingham had said about Grantly Dick Read. He thought that a method which taught the patient to relax and get rid of tension and gave her confidence made for an easy delivery; but there was a danger in it. Very few women achieved the ideal, perfect delivery that Dr. Arnett had quoted. There was danger from the psychological angle, in that the patient became very disappointed at not achieving the ideal delivery.

Dr. R. B. C. STEVENSON said that, with regard to the teaching of relaxation in childbirth, in Sydney long before Grantly Dick Read's books had been published they had been instructing patients that the only two things necessary for a normal confinement were to achieve mental placidity and muscular relaxation. On some occasions he had found that patients who had read Read's book did experience pain when they believed they would not. That broke their confidence and made it difficult for them to believe anything else they had read. He himself adopted the policy of telling the patient that a labour pain was painful, but that if she could relax it was a bearable pain, and that it left her with a sense of elation because she would realize that she was getting on with the birth. If the patient was mentally or physically taut, there was added to the labour pain an element of cramp which made the pain much worse. Dr. Stevenson quoted a case to illustrate the part a disordered psyche could play in the causation of dysmenorrhoea. He stressed the importance of first excluding any organic cause or contributing factor, and said that if people with dysmenorrhoea could be taught to relax mentally and physically during menstruation as during labour, the battle was half won.

Dr. GRACE CUTHBERT BROWNE said that she wished to take up the cudgels on behalf of Grantly Dick Read. What was owed to him was the fact that he drew the attention of many mothers to the possibilities of better educational care during pregnancy. From her own personal knowledge of Read and of his work, she was convinced that his aim was to spread the idea amongst obstetricians that the health education of mothers was most important. It was not only a question of telling them that they must do particular exercises; there was the important matter of continuity into the labour ward of the physiotherapist or of the trained person who had guided the mother. She believed that that was one of the most important things. She stressed the fundamental importance of the health education of the mother, and mentioned the value of her association with the Australian Physiotherapy Association and of the confidence that had been established between the Department of Public Health and the obstetricians in the years since 1938. She would welcome any further suggestion from the obstetricians on the question of advice on healthy motherhood. In London in almost all hospitals there were classes on various subjects for prospective parents. She thought that in general the story of Grantly Dick Read had not been quite fairly presented, and what she had said was intended to show how he had helped all who were concerned with healthy motherhood. If all the hospitals could establish the type of health education being given in London and New York, it would be of great benefit. There were constant inquiries through the Baby Health Centres in Sydney as to where mothers could go to such classes; all that they could be told was that regular classes were conducted by a women's weekly magazine.

Dr. K. S. RICHARDSON said that there had been an increasing tendency throughout the world during the last few

years for people to want to know about things, which was reflected in newspaper articles and literary digests. The same kind of thing applied in medicine, he thought probably to some use and to some good. He believed that a gynaecologist should try to make himself something of a working psychologist. It was important to note the number of people who came complaining of pelvic pain, and who were very relieved when the gynaecologist could tell them that they had no basic specific disease. He thought that fear of disease was one of the biggest factors in the continuation of pelvic pain, and if the pelvis was normal, some small explanation of why the pain was occurring could be of great use. In the field of obstetrics and the fear of the expectant mother, one could make use of the value of news and the value of instruction by telling the patients what to expect. He did not think it was much good to ask people to relax in labour unless they knew what to expect. It was a simple and not time-consuming matter to explain to a *primipara* what the first stage of labour meant; that a baby could not be born until the end of the uterus was opened; that the first stage of labour was purely a preparation for the second stage, and might be long and painful, and more painful because nothing seemed to be being achieved. If the knowledge of such things was given to the patients, the real results of relaxation could be greatly increased.

Dr. A. A. MOON said that every disorder that had been mentioned in the papers was debatable. Gynaecologists did not know the cause of dysmenorrhoea nor how to treat it. They lacked accurate knowledge concerning many of the symptoms and troubles of the menopause. *Pruritus vulvae*, premenstrual tension, all the things that had been mentioned were mysteries, and each patient had to be given individual care. Dr. Moon was grateful to Dr. Chapman for his remarks on vaginal discharges. It had taken him a long time to realize that many vaginal discharges were purely an expression of a physiological condition, and he had helped many women by doing nothing. The concept that many vaginal discharges were an expression of a psychoneurosis or a disturbed state deserved consideration. Dr. Moon then referred to vaginal discharges which were regarded as specific—for example, *Trichomonas vaginalis* vaginitis which was perhaps the most common. He said that *Trichomonas* was a normal inhabitant of the vagina, and the problem was why many women suffered from *Trichomonas vaginalis* vaginitis in repeated attacks, while others did not get it at all. Some added factor was supposed to produce an attack; psychiatrists had suggested that the added factor was not symbiosis with some other organism, such as an anaerobic streptococcus or *Bacterium coli*, but emotional tension and nervous strain. Dr. Moon wondered whether Dr. Chapman as a practising gynaecologist thought there was any foundation for that suggestion. Dr. Moon went on to say that he had the impression that spasmodic dysmenorrhoea was not as common as it had previously been in young women in the eighteen to twenty-five years age group, whereas premenstrual tension in women aged from about thirty-three to thirty-eight years was much more common. He had been interested in Dr. Arnett's statement concerning the relation of premenstrual tension to that state of frustration when the ovum had not been impregnated. Dr. Moon said that he found premenstrual tension a difficult condition to treat, and he wondered whether either Dr. Chapman or Dr. Arnett had any definite ideas on the subject.

Dr. I. G. SIMPSON said that he wished to call attention to two conditions. The first was spontaneous abortion. He had had a number of cases recently; one woman had had 32 abortions, and he thought that must be almost a record. Dr. Simpson said that he had been impressed by the emotional immaturity of such women and their hysterical tendencies. He asked whether others present had had similar experiences in that regard, and whether they thought that psychological factors had a big part to play in recurrent spontaneous abortion. Dr. Simpson had a word of warning to offer. He said that Dr. Chapman had mentioned sterility clinics. They had done a good job in the community; but he gave warning against the too mechanistic approach that some of them might have. He remembered particularly one patient, a woman who was obsessional about having children. Her husband was a good fellow who had a farm of his own. She was taking her temperature practically every hour and calling him in off the fields after a busy day ploughing. After several months of that he became totally impotent.

Dr. Chapman, in reply to Dr. Moon's question about *Trichomonas* infection, said that he did not know. He thought that spasmodic dysmenorrhoea was much less common than it used to be; there was much less frustration



than when he was aged about fifteen to seventeen years. Dr. Chapman thought that there was a considerable connexion between recurrent abortions and psychology. It was not known what governed the distance that the ovum came down the uterus; it must certainly be related to tension, contractions or movements, the state of the endometrium and so on. He had several patients who under great stress had had recurrent abortions. One woman had had three in succession while her husband was erring with another woman; when he reformed, she was able to carry on with a pregnancy and had a normal child. Although that proved nothing, it was an example of what could happen. There was no reason why the cause should not be psychological. Premenstrual tension in the later years had undoubtedly become much more common in gynaecological practice. Dr. Chapman had an idea that it was due to hyperoestrinism, because he had had fairly satisfactory results by the injection of lutein hormone after about the time of ovulation. Affected women nearly all had engorged breasts a week before their menstrual periods, and they had a great deal of tension. For several years past he had had good results by the injection of up to 65 milligrammes of "Proluton". He used the depot injection, and gave it almost immediately after the *corpus luteum* should have begun to form. Another injection was given two or three days before the menstrual period was due. The patients experienced a great deal of relief. He could recommend a trial of the treatment for premenstrual tension, especially when tension in the breasts was present, which often caused much pain.

Dr. Howe, from the chair, said that in summing up the discussion the best thing he could do was to quote the Scriptures and say that "perfect love casteth out fear". Thus the well-adjusted woman did not get psychological and psychiatric problems. To paraphrase the statement slightly, perfect understanding, or increased understanding, rapidly diminished fear. Dr. Grace Cuthbert Browne had done a great service to all the mothers in the State by helping to cast out their fears. The task confronting psychiatrists and gynaecologists was to try to get more perfect knowledge in order to be able to cast out more fears. If they could succeed in doing that, the world would be a happier place for women.

## Out of the Past.

*In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.*

### THE TOAD FISH.<sup>1</sup>

[From the *Sydney Gazette*, April 21, 1821.]

AN inquest was assembled yesterday on the body of John Buff who came to his death in the following manner. The unfortunate man had been fishing during the afternoon at the Duck river bridge about 3 miles distant from the town of Parramatta on the Sydney Road and had caught a few toad fish. On his return to Parramatta he broiled the fish for his supper and ate them accordingly. In about ten minutes afterwards he expressed himself as being nearly insensible: his tongue became much swollen, he laid himself prostrate on the ground and requested to have some water given to him complaining of extreme thirst. As soon as he had drank the water he begged to be turned on the other side which last request of the poor man was hardly complied with before his soul took her flight into eternity. From the time he had eaten the fish until the time of his death was about 20 minutes. The verdict on this occasion was—died by eating the toad fish. We have one remark to make upon the cause of the unfortunate man's death—the toad fish. It is of all others of the small finney tribe the most forbidding to behold: it has a bullhead runs tapering to the tail and in length never exceeds six inches: it is found always about the beach coming in and receding with the tide: and it is proverbially known and has ever been declared to be poisonous since the formation of our Colony. Animals have eaten of the fish and soon after died. The very appearance of the animals is sufficient to excite abhorrence. It is worthy of note that the deceased expressed no

feeling of bodily pain but went off as it were in a slumber. Persons that have been bitten by snakes have been affected much in a similar way and have sometimes expired as quietly.

[In the *Sydney Gazette* of April 21, 1831, there is an account of an inquest held in Hobart Town on April 2 into the death of Mrs. Bell and her two children, who had eaten cooked toad fish.]

## Correspondence.

### SALT CONSUMPTION AND ITS CONSEQUENCES.

SIR: I was most interested in the matter of "Salt Consumption and its Consequences" under the heading of "Current Comment" in *THE MEDICAL JOURNAL OF AUSTRALIA* dated February 9, 1957. The early statement that "the addition of sodium chloride to man's food has largely been taken for granted, although there has been little if any physiological evidence that such addition is in any way advantageous" was a matter of particular interest to me.

It made me wonder how current are my comments in an article "Experiences of Salt Deficiency" published in *THE MEDICAL JOURNAL OF AUSTRALIA* dated January 2, 1943. This article covered a series of observations of varying illnesses due to salt loss sustained through profuse sweating under conditions of high temperature and high humidity. The conclusion reached was that salt loss causes such symptoms and clinical manifestations as headaches, drowsiness, lassitude, gastric and intestinal disturbances, distressing abdominal cramps and heat exhaustion. Reference was made also to cases of collapse and sudden death, due to salt loss.

The experiences centred mainly around conditions as encountered on board ships during World War II, but reference was made also to aspects encountered in the more static area of the earth's surface.

The preventive measure of taking one half teaspoonful of salt twice daily when profuse sweating was likely to be encountered was recommended and instituted in all our warships serving in tropical areas. On subsequent contact with ships of the United States Navy, I was pleased to note a similar procedure had been established on board their ships.

Perhaps I had these aspects in the foreground, and hence my reaction may be decidedly a personal one; but I did end up with the impression, after reading *THE MEDICAL JOURNAL OF AUSTRALIA* article, that the matter of salt consumption and salt loss was generally not one for grave concern anyway.

To my mind there are more pertinent aspects than that salt "could be of considerable importance in producing a heightened responsiveness in the type of people demanded by the quickened pace of modern society".

I have discussed the matter with Naval medical officers who have recently served in ships in tropical areas. The position as outlined in my article of 1943 seems substantially unchanged. The preventive measure of taking salt tablets daily is mainly strictly adhered to. There are still similar types of illnesses being encountered, especially when the individual has failed to adhere to the precautionary measures. There are always such individuals on board, but fortunately the percentage is small.

Extending over a long period of years, one can recollect reports of deaths on board ships during the passage through the Red Sea, and in the coal-burning days reports of many fatalities amongst stokers. I have a strong impression that many of these unfortunate and sudden endings were due to salt loss. (The hazard in this particular area has, of course, been recently reduced to the minimum by the activities of one named Nasser.)

Apart from such distant areas, cases of collapse, heat exhaustion, gastric intestinal disturbance due to salt loss are being brought to notice in our own immediate surroundings. The histories do not seem to have any great variation. On a hot, humid day when hard manual labour or physical exertion at sport had taken place with profuse sweating, symptoms would develop.

*THE MEDICAL JOURNAL OF AUSTRALIA* article of February 9 concluded with the unanswered question: "How much salt should a normal person consume?" For a precise reply this would be a difficult question even for the "Quiz Kids" to

<sup>1</sup> From the original in the Mitchell Library, Sydney.

answer. There are many varying factors causing the necessary amount also to vary. Sodium chloride can be regarded both as medicine and an article of diet, and from the latter aspect the amount taken varies considerably in normal persons. The amount to be taken depends on the salt loss at the time, as in the conditions enumerated previously, namely, high temperature, high humidity causing profuse sweating, and more so when combined with physical exertion.

To conclude, I must again repeat that, based on observations extending over many years, I feel very strongly about the importance of salt loss, and in answer to the question I can only offer as a matter of practical suggestion that a total intake of one teaspoonful of salt during the course of twenty-four hours, even under the most trying conditions of heat, humidity, physical exertion and profuse sweating, will prevent any untoward effects due to salt loss. Under normal conditions the amount to be taken would be appreciably less.

Salt tablets are supplied to ships of the Royal Australian Navy in five and fifteen grain amounts. They are placed on the mess tables during meals, and in a "salt educated ship" are readily made use of.

It was a matter of experience also that, if sodium chloride was exhibited in cases showing the previously enumerated series of symptoms, a rapid response was noted if the basic cause was salt loss. Naturally, salt loss did not account for all such cases, but even a short trial of sodium chloride proved a useful diagnostic aid.

Yours, etc.,

J. M. FLATTERY,  
Surgeon Captain, R.A.N.  
Balmoral Naval Hospital,  
Sydney,  
February 25, 1957.

#### THE USE OF PETHIDINE AND OTHER NARCOTICS.

SIR: I note, with a certain amount of cynical amusement, that a committee is to be set up by the Federal Council of the British Medical Association to investigate the alarming increase in the use of pethidine and other narcotic drugs. Appended hereunder is a list of amounts of various drugs required to control the pain of a patient in the terminal phase of carcinomatosis. He had multiple metastases in liver, peritoneum and spine. The period in question was fifty-eight days, from December 14, 1956, to February 10, 1957.

"Largactil": 8800 milligrammes, equals 176 ampoules.

"Dromoran": 708 milligrammes—approximately 708 ampoules.

Pethidine: 3600 milligrammes, equals 36 ampoules.

Morphine: 51½ grains, equals 206 quarter-grain doses.

I have only three comments to make:

1. This colossal consumption of drugs would have been totally unnecessary had heroin been available.

2. The fact that three different narcotics were used together or singly shows that relief of pain was not maximal and, even more important, the peace of mind and the euphoria which heroin confers was not obtained.

3. The taxpayers' pockets might benefit if heroin was released; and, what is only of secondary consideration to bureaucrats, patients suffering from incurable diseases might be given a more peaceful ending.

Yours, etc.,

486 Old South Head Road,  
Rose Bay,  
New South Wales.  
February 20, 1957.  
ROGER DUNLOP.

### Post-Graduate Work.

#### THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

##### GENERAL REVISION COURSE.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that the annual general

revision course will be held in Sydney for the two weeks beginning May 6, 1957. As in the previous course, the main emphasis is on therapeutics, and in addition the programme, as in former years, is a comprehensive survey of modern trends in diagnosis and treatment of special value to general practitioners.

Members of the course are invited to bring their own X-ray films for the X-ray conference to be held on Friday, May 10.

During the period of the course, individual instruction in the performance of post-mortem examinations under the supervision of Dr. C. E. Percy will be arranged on request.

The full programme may be obtained from the Post-Graduate Committee in Medicine in the University of Sydney. Some of the highlights are as follows.

##### Evening Lectures by-Overseas Visitors.

Members of the general revision course are invited to attend the following lectures in the annual subscription course:

Monday, May 6, 8.15 p.m.: "Some Considerations in the Differential Diagnosis of Shadows Associated with the Mediastinum", Dr. S. Whately Davidson, Physician-in-Charge, Radiological Department, Royal Victoria Infirmary, Newcastle-on-Tyne.

Monday, May 13, 8.15 p.m.: "Tumours of the Ovary and Testicular Tumours", Dr. John F. Bromley, Director of Radiotherapy Department, Birmingham United Hospitals.

Tuesday, May 14, 8.15 p.m.: "The Changing Scope of Surgery", Sir James Paterson Ross, Professor of Surgery in the University of London, and Sims Commonwealth Travelling Professor for 1957.

Thursday, May 16, 8 p.m.: "Tranquillizing Drugs", Professor J. M. Robson, Professor of Pharmacology, Guy's Hospital Medical School, London.

Friday, May 17, 8.15 p.m.: "Inflammatory and Idiopathic Oedema", Sir James Paterson Ross.

##### Annual Post-Graduate Oration.

The tenth annual Post-Graduate Oration will be delivered by Dr. Douglas Miller on "The Medical Pioneers of Saint Vincent's Hospital, Sydney" on Wednesday, May 15, 1957, at 8.15 p.m., in the Great Hall of the University of Sydney.

##### Social Activities.

The social activities will include a cellar party, a cocktail party and a theatre party. The afternoon of Friday, May 10, has been left free; but special arrangements can be made with the Committee for visits to the Taronga Zoological Park, to the mechanical brain "Silliac" at the University of Sydney, and to a modern automaton plant or to hospitals.

The Post-Graduate Golf Cup competition will be played on Friday, May 17.

##### Fees and Method of Enrolment.

Fees for attendance at the general revision course are as follows: full course, £12.12s.; mornings or afternoons only, £6 6s.; one week only, £6 6s. Early application, with remittance enclosed, should be made to the Course Secretary, The Post-Graduate Committee in Medicine, 131 Macquarie Street, Sydney. Telephones: BU 4497-8. Telegraphic address: "Postgrad Sydney." Fees and travelling expenses for this course are taxation deductions. When such deductions are claimed, "Taxation—File No. AF/1865" should be quoted.

##### POST-GRADUATE CONFERENCE AT WAGGA WAGGA.

The Post-Graduate Committee in Medicine in the University of Sydney announces that a post-graduate conference will be held in conjunction with the Southern Districts Medical Association in the Nurses' Home at the Wagga Wagga Base Hospital on Saturday and Sunday, April 27 and 28, 1957. The programme is as follows:

Saturday, April 27: 2 p.m., registration; 2.30 p.m., "The Doctor, the Patient and the Law", Dr. John McGeorge; 4 p.m., "Thoracic Surgery and the General Practitioner", Dr. Ian Monk.

Sunday, April 28: 9.30 a.m., "Recent Advances in Renal Disease", Dr. Ralph Reader; 10.45 a.m., "Murder and its Motives", Dr. John McGeorge; 11.45 a.m., "Management of a Serious Chest Injury", Dr. Ian Monk; 2.15 p.m., "Little Known but Not Uncommon Diseases and Their Treatment", Dr. Ralph Reader.



The fee for attendance is £3 3s., and those wishing to attend are requested to notify Dr. M. E. Cahill, Honorary Secretary, Southern Districts Medical Association, 30 Heath Street, Wagga Wagga, 38. Telephone: Wagga 9274.

#### ALTERATION TO THE PROGRAMME OF DR. MERRILL C. SOSMAN.

The Post-Graduate Committee in Medicine in the University of Sydney announces the following alteration in the programme of Dr. Merrill C. Sosman, Roentgenologist-in-Chief, Peter Bent Brigham Hospital, Boston: Wednesday, March 20, at 8.20 p.m., in the Maitland Lecture Theatre, Sydney Hospital (and not in the Stawell Hall as previously announced): "The Accuracy and Reliability of the Röntgen Examination."

## Congresses.

### INTERNATIONAL CONGRESS ON RHEUMATIC DISEASES.

THE ninth International Congress on Rheumatic Diseases will be held at the Royal York Hotel, Toronto, Ontario, Canada, from June 23 to 28, 1957. Correspondence relating to this congress should be addressed as follows: Post Office Box 237, Terminal "A", Toronto, Ontario, Canada.

### INTERNATIONAL EXHIBITION OF MEDICAL ARTS.

THE third International Exhibition of Medical Arts, sponsored by the *Minerva Medica* Press Group and the Italian Medical Association, will be held at the Palace of Exhibitions in the Valentino Park, Turin, from June 1 to 9, 1957. The

display will include recent achievements in the fields of medicine, surgery and hygiene. There will also be a number of conferences on medicine, surgery and pharmaceutical technique, a scientific exhibition and the third International Festival of Scientific Medical Films. An interesting feature will be a display of doctors' hobbies. Further inquiries may be addressed to the Secretary-General of the Exhibition, *Minerva Medica, Corso Bramante, 83-85, Torino, Italy.*

## Research.

### THE ROYAL SOCIETY.

#### Alan Johnston, Lawrence and Moseley Research Fellowship.

APPLICATIONS are invited by the Council of the Royal Society for the Alan Johnston, Lawrence and Moseley Fellowship for research into the problems of human and animal health and diseases and the biological field related thereto. The Fellowship will be tenable at any place approved by the Council of the Royal Society. Candidates should supply the usual personal details and give the names of two referees. Testimonials will not be considered. Applicants and referees at a distance may write direct to the address given below, without first obtaining forms. The subject of the proposed research and the place at which it would be carried out, together with the name of the head of the department, should be given.

The appointment will be for two years in the first instance, from October 1, 1957, and will be renewable annually up to a maximum of five years. It will be subject to the conditions governing Royal Society research appointments. The stipend will be £1250 *per annum*, with annual increments of £50 *per annum*, with superannuation benefits to which the successful candidate will be required to contribute 5% of

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED MARCH 2, 1957.<sup>1</sup>

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory. <sup>2</sup>	Australian Capital Territory.	Australia. <sup>3</sup>
Acute Rheumatism ..	..	2(2)	2	..	..	..	..	..	4
Amoebiasis ..	..	..	..	..	..	..	..	..	..
Ancylostomiasis ..	..	..	1	..	..	..	..	..	1
Anthrax ..	..	..	..	..	..	..	..	..	..
Bilharziasis ..	..	..	..	..	..	..	..	..	..
Brucellosis ..	..	2	..	..	..	..	..	..	2
Cholera ..	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus) ..	..	..	..	..	..	..	..	..	..
Dengue ..	..	..	..	..	..	..	..	..	..
Diarrhoea (Infantile) ..	4(4)	14(13)	6(5)	..	..	..	..	..	24
Diphtheria ..	2(2)	2(2)	..	..	3	..	..	..	7
Dysentery (Bacillary) ..	..	7(7)	2	..	..	..	..	..	9
Encephalitis ..	..	2(2)	..	..	..	..	..	..	2
Filariasis ..	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid ..	..	1(1)	..	..	..	1	..	..	2
Infective Hepatitis ..	42(24)	51(22)	..	10(4)	9(2)	3(2)	..	..	115
Lead Poisoning ..	..	..	1(1)	..	..	..	..	..	1
Leprosy ..	..	..	..	..	..	1	..	..	1
Leptospirosis ..	..	..	..	..	..	..	..	..	..
Malaria ..	..	..	..	..	..	..	..	..	..
Meningococcal Infection ..	1	2(1)	..	..	1	..	..	..	6
Ophthalmia ..	..	..	..	..	..	..	..	..	..
Ornithosis ..	..	..	..	..	..	..	..	..	..
Paratyphoid ..	..	..	..	..	..	..	..	..	..
Plague ..	..	..	..	..	..	..	..	..	..
Polio-myelitis ..	1	1(1)	1(1)	..	..	..	..	..	3
Puerperal Fever ..	..	..	..	..	..	..	..	..	..
Rubella ..	..	52(49)	..	17(13)	6(5)	..	..	..	75
Salmonella Infection ..	..	..	..	..	..	..	..	..	..
Scarlet Fever ..	4(2)	13(5)	5(3)	3(1)	..	..	..	..	25
Smallpox ..	..	..	..	..	..	..	..	..	..
Tetanus ..	..	1(1)	2	..	1(1)	..	..	..	4
Trachoma ..	..	..	..	..	..	..	..	..	..
Trichinosis ..	..	..	..	..	..	..	..	..	..
Tuberculosis ..	26(10)	14(10)	7(1)	3(3)	8(6)	4(1)	..	..	62
Typhoid Fever ..	1(1)	..	..	..	1	..	..	..	2
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever ..	..	..	..	..	..	..	..	..	..

<sup>1</sup> Figures in parentheses are those for the metropolitan area.

<sup>2</sup> Figures not available.

<sup>3</sup> Figures incomplete owing to absence of returns from Northern Territory.

annual stipend, and to which the Society will make a contribution of 10%.

Applications should be made on forms to be obtained from the Assistant Secretary, The Royal Society, Burlington House, London, W.1, and should be received as early as possible, in any case not later than April 6, 1957.

## Naval, Military and Air Force.

### APPOINTMENTS.

THE following appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*. No. 9, of February 14, 1957.

#### AUSTRALIAN MILITARY FORCES.

##### Citizen Military Forces.

###### Eastern Command.

*Royal Australian Army Medical Corps (Medical).*—2/146610 Honorary Captain A. P. Skyring is appointed from the Reserve of Officers, and to be Captain (provisionally), 25th October, 1956. To be Captain (provisionally), 5th December, 1956: 2/127058 James Barry Roche.

###### Southern Command.

*Royal Australian Army Medical Corps (Medical).*—3/123506 Honorary Captain D. A. Jolley is appointed from the Reserve of Officers, and to be Captain (provisionally), 2nd June, 1956. 3/101831 Captain C. W. Baird is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Southern Command), 18th October, 1956. To be Major, 10th December, 1956: 3/101016 Captain (Temporary Major) R. D. Wilson. To be Captain (provisionally), 12th December, 1956: 3/159573 Andrew Patrick Ahern.

###### Central Command.

*Royal Australian Army Medical Corps (Medical).*—The resignation of 4/32014 Captain H. H. A. Sauer of his commission is accepted, 16th November, 1956. To be Major, 4th December, 1956: 4/35404 Captain J. D. Lister.

###### Western Command.

*Royal Australian Army Medical Corps (Medical).*—To be Major, 5th December, 1956: 5/26459 Captain (Temporary Major) V. T. White.

###### Tasmania Command.

*Royal Australian Army Medical Corps (Medical).*—To be Captain (provisionally), 5th December, 1956: 6/15393 Peter Pitney.

#### Reserve Citizen Military Forces.

##### *Royal Australian Army Medical Corps (Medical).*

*Southern Command.*—To be Honorary Captains: John Hume Coldbeck, 5th November, 1956, and Ian Keith Robinson, 16th November, 1956.

*Western Command.*—To be Captain, 4th December, 1956: John Watson.

## Notice.

### CLINICAL BIOCHEMISTRY MEETING.

A CONJOINT MEETING of the Society for Experimental Biology with the Australian Biochemical Society (New South Wales) will be held at the Royal North Shore Hospital (Students' Common Room) on Tuesday, March 26, 1957, at 7 p.m. The speakers and subjects will be as follows: R. Lemberg, Ph.D., F.R.S., "Porphyrin and Porphyrinuria"; B. Stacy, Ph.D., "Precision in Clinical Biochemistry"; R. J. Walsh, M.B., B.S., "The Determination of Hemoglobin and the Use of Hemoglobinometers"; W. Hensley, M.B., B.S., "Clinical Biochemistry in the U.S.A."

## Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Mattocks, Kyrle Maitland, M.B., B.S., 1947 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown, New South Wales.

Dawson, Peter James, M.B., B.S., 1956 (Univ. Sydney), 38 Ninth Avenue, Campsie, New South Wales.

## Deaths.

THE following deaths have been announced:

HENSHALL.—Harding Herbert Henshall, on March 4, 1957, at Heidelberg, Victoria.

BLACK.—John Roland Black, on March 7, 1957, at Collaroy, New South Wales.

FERRIS.—Frederick Allan Ferris, on March 10, 1957, at Ulverstone, Tasmania.

## Diary for the Month.

MARCH 23.—Victorian Branch, B.M.A.: Country Branch Meeting.

MARCH 26.—New South Wales Branch, B.M.A.: Council Quarterly.

MARCH 27.—Victorian Branch, B.M.A.: Branch Council.

MARCH 28.—New South Wales Branch, B.M.A.: Annual Meeting.

MARCH 28.—South Australian Branch, B.M.A.: Listerian Oration.

## Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

*New South Wales Branch* (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

*Queensland Branch* (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

*South Australian Branch* (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

## Editorial Notices.

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